

CTO

BUSINESS TECHNOLOGY LEADERSHIP

BUSINESS INTELLIGENCE

Beyond analytics—
BI goes operational

Page 29

LAW AND ORDER

What you need
to know about
e-discovery

Page 64



Cures for Complexity

Every innovation, every business improvement, creates new layers of complexity. Here's how to **simplify**.

BY GALEN GRUMAN Page 46

PLUS

WORKFLOW

Best practices for implementation;
how to spot problems

Page 70

A BETTER BUILT SEARCH APPLIANCE



HOW DELL SIMPLIFIED IT FOR GOOGLE

LEARN ABOUT DELL AND GOOGLE AT
DELL.COM/Bettersearch or call 866.259.DELL





**IN THE WORLD OF PRINTING,
I CAN DELIVER ACCURACY, QUALITY AND CONSISTENCY
THAT WILL ALWAYS BE IN STYLE.**

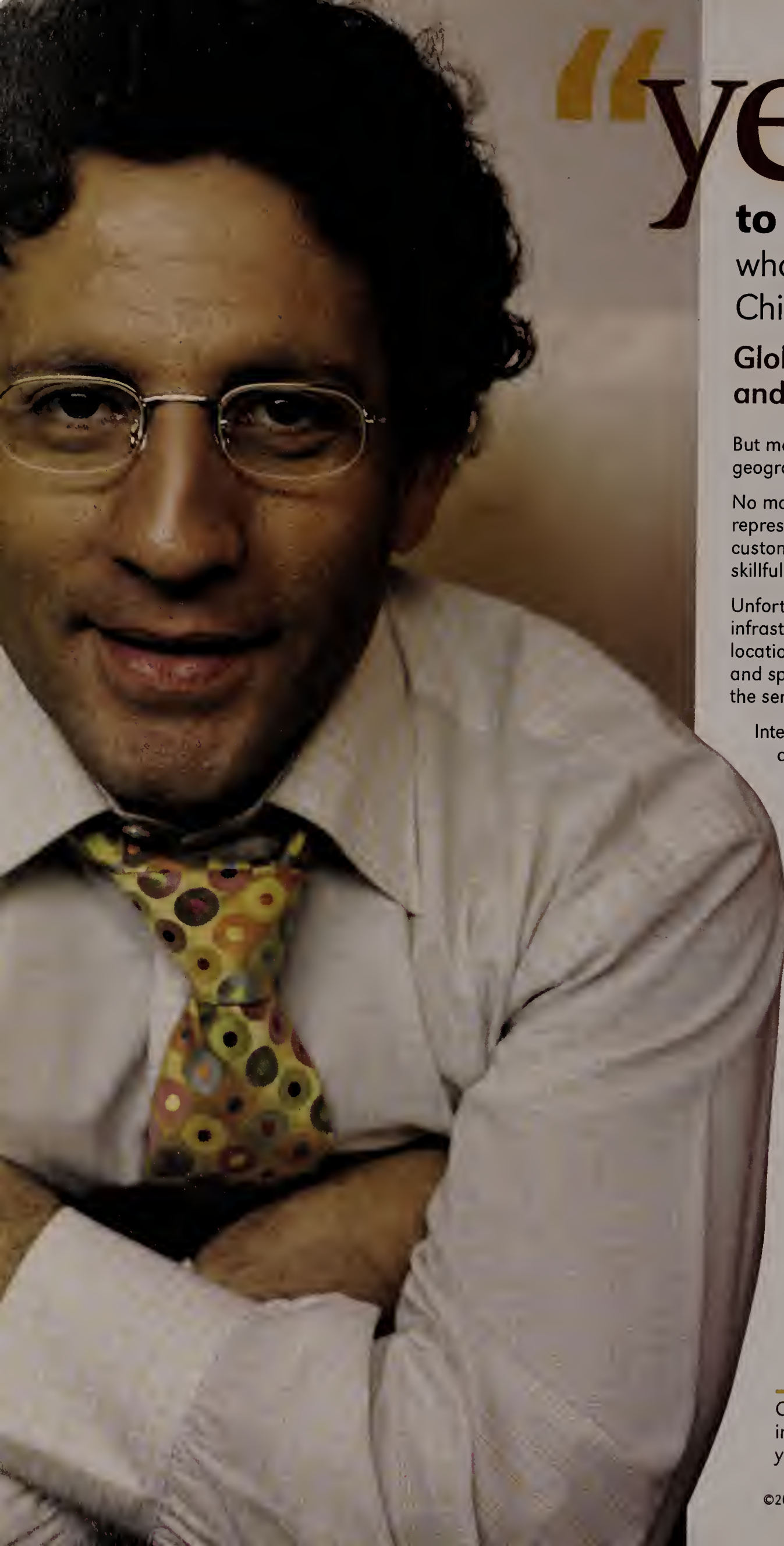


**THE CANON IMAGEPRESS C1
PRODUCE. PERSUADE. PERFORM. ON PAPER.**

imagePRESS™
www.usa.canon.com 1-800-OK-CANON

Canon is a registered trademark and IMAGEPRESS is a trademark of Canon Inc. in the United States and may also be registered trademarks or trademarks in other countries. IMAGEANYWARE is a trademark of Canon. © 2007 Canon U.S.A., Inc. All rights reserved. Product shown with optional accessories.

Canon
imageANYWARE



“yes!” to the CIO

who needs Tokyo to be
Chicago once in a while.

**Global markets are strong
and business is good.**

But managing communications across
geographies is a challenge.

No matter what part of the world a
representative works in, handling a
customer's interaction promptly and
skillfully is a must.

Unfortunately in multi-site service
infrastructures, overloads at certain
locations, idle agents at others, and bump
and spike load imbalances often disrupt
the service process.

Interactive Intelligence balances
distributed service operations with a
single, wide-ranging IP platform to
route calls, e-mails and generic
media—efficiently handling
both your contact center and
enterprise communication needs.

It's a software platform
multi-site businesses have
implemented worldwide—to
present a consistent external
face, reduce costs and exceed
service levels at distributed
locations.

No matter where those
locations are.



INTERACTIVE INTELLIGENCE®
Deliberately Innovative

We say YES! to the
distributed business.

www.inin.com

Contact us to discuss designing and
implementing the right platform for
your virtual operations.



Motorola CIO
Patty Morrison:
"The hardest thing for
IT to do is to get
business units to agree
on a common way
to do something."

46

46 | Cures for Complexity

COVER STORY | I.T. COMPLEXITY Every innovation, every business process improvement, comes with an IT complexity tax that must be paid by CIOs in time, money and sweat. Here are strategies to mitigate the increasing complexity of IT as it enables new business. **By Galen Gruman**

64 | Law and Order

I.T. AND THE LAW Now that e-mails and electronic documents have attained the same evidentiary status as paper, CIOs need to standardize processes for e-discovery. **By Judi Hasson**

70 | Making Workflow Work and Flow for You

BUSINESS PROCESS MANAGEMENT Workflow isn't rocket science, but it isn't magic either. It can improve the way your organization runs only if you apply its principles correctly. **By Rick Cook**

Columns

36 | Advice for Aspiring CEOs

CAREER STRATEGIST It's never too soon to start preparing to become the boss. Here's how to do it. **By Martha Heller**

40 | Consensus Builder

APPLIED INSIGHT You need rules for running—and using—IT. And the people who have to live with these rules need to help make them. That's the best way to ensure that your IT policies won't constrain your business. **By N. Dean Meyer**

85 | How (and Why) to Understand Your Market

STRATEGIC CIO The CIO of Quest Diagnostics continually tests her market savvy in order to develop IT-enabled products and services that customers need. **By Mary Hall Gregg**

more »



Special Olympics CIO
André Mendes:
Reducing complexity
increases "your ability
to implement
new solutions."

48

contents (Cont.)

In Every Issue

8 | From the Editor

My bathroom, and why you should care about it. **By David Rosenbaum**

10 | From the Publisher Emeritus

I'll show you my connections if you show me yours. **By Gary Beach**

12 | Letters

17 | Trendlines

- ▶ Gen Y: Too big for their britches?
- ▶ A real, not virtual, data center problem
- ▶ Four smart BI trends for savvy users
- ▶ No gold medal for online ticketing
- ▶ Holiday gift guide
- ▶ Will you be lucky in Lucknow?
- ▶ Career: No consultants need apply
- ▶ Hot jobs: Head of IT HR

29 | Essential Technology

Think of operational business intelligence as a cool sleuthing tool to help you spot and fix problems as soon as possible. **By Galen Gruman**

78 | Forum

A business sensibility is not just what your IT staff learns in an introductory MBA course. What it's really about is thinking and acting like a businessperson. **By Carrie Mathews**

82 | Index



CIO Online

cio.com

[GENERATION Y]

How to Find and Manage Young Workers

Generation Y: They're young, smart, talented—and disconcertingly demanding. Go to CIO.com to find tips for hiring and managing them. See "Management Techniques for Bringing Out the Best in Generation Y," and "10 Tips for Recruiting Entry-Level Technical Talent."

» www.cio.com/article/149053

» www.cio.com/article/154051

[RETAIL MADNESS]

Crunch Time at the Mall

The IT leaders managing retail, business intelligence and supply chain systems are girding for the holiday crunch. Read our reports about critical business issues facing them in this make-or-break season.

www.cio.com/article/156050

[NEWSLETTERS]

Updates Delivered Fresh

We're assembling fresh stories for CIO.com—reporting on important enterprise technology news, analyzing trends—breaking new ground every day. Our newsletters on business, technology and leadership are geared to CIOs with no time to spare and IT managers who need to keep current. And who doesn't? So sign up at

www.cio.com/newsletters



[OPEN SOURCE]

THE BUSINESS CASE FOR LINUX

Advocates for Ubuntu, Red Hat, SUSE and Fedora OS get equal time to argue the business benefits of their Linux distributions.

www.cio.com/article/155701

Right
now@
cio.
com

- » **Mobility:** Google's Android mobile platform and the enterprise
- » **Enterprise Leadership:** Recruiters say Microsoft should seek an insider to replace its ousted CIO
- » **BI:** How will IBM's purchase of Cognos impact customers?
- » **Applications:** Business lessons from Facebook widget masters

HOW TOXIC IS YOUR STORAGE?



THINK GREEN.



3PAR customers can buy **half the storage capacity** required with traditional storage arrays, reducing energy consumption and the related toxic impact on the environment.

With **Carbon Neutral Storage**, 3PAR purchases carbon offsets for the disk capacity sold with Thin Provisioning. So far this program has offset more than 5 million pounds of carbon emissions — equivalent to taking 500 cars off the road for a year.

Visit www.3PAR.com/thinkgreen to access a complimentary Gartner report on thin provisioning.



Think Thin. Think Green. Think 3PAR.

My Bathroom

And why you should care about it



I never gave much thought to my bathroom until water started dripping out of the recessed lights in the kitchen below it. Naturally, I called a plumber. He told me that my legacy system was no longer sufficiently robust to support washing and waste disposal activities. And due to the inflexible nature of the bathroom's infrastructure, it would need a soup-to-nuts upgrade to version 2.0. That would entail a total curtailment of functional processes for the duration of the project (estimated to

be six weeks) and a major financial investment of scarce resources.

(What he actually said was close to incomprehensible, as his English was rudimentary at best, but the gravity of the situation and the comprehensiveness of his analysis became crystal clear when he presented his estimate for the job.)

After the room was reduced to rubble, after the ceiling, walls, floor and fixtures disappeared, the infrastructure was revealed in all its dysfunctional glory.

Complicated? I had no idea. Pipes twisted up, down and all around, taking odd turns to avoid old studs and ancient beams, rusting ducts and clogged vents. Iron pipe gave way to copper, which in turn gave way to PVC (from an upgrade made prior to my acquisition of the premises). Wires snaked and coiled everywhere.

One should never have to see the guts of one's domicile exposed like that.

Similarly, a business doesn't want to know about the infrastructure or IT architecture that supports its business processes. All it wants is hot and cold running apps when it turns on the IT faucets. It wants the new geegaws that enable it to do business faster, more easily and above all, more profitably.

The problem is, each new gadget, each new application, each new product, process or function adds complexity that stresses the legacy system and strains the CIO's carefully constructed architecture—and his scarce resources—until... you spring a leak and have to shut down.

I assure you from bitter (and grungy) experience, you don't want to go there.

I might have avoided my bathroom disaster had I taken steps before the leaks began. You can avoid some of the costs of IT complexity if you start now, making process central to your technology strategy, communicating with the business in an open and predictable manner, keeping an eye on signs that your legacy systems are holding you back, not pushing you forward. Nothing about this is simple, but our cover story, "Cures for Complexity" (Page 46), suggests ways to begin.

David Rosenbaum, Editor
drosenbaum@cio.com



BUSINESS TECHNOLOGY LEADERSHIP

PRESIDENT AND CEO Michael Friedenberg
PUBLISHER Bob Melk
PUBLISHER EMERITUS Gary J. Beach

EDITORIAL

EDITOR IN CHIEF
Abbie Lundberg

EDITOR
David Rosenbaum

EXECUTIVE EDITOR
Elana Varon

TECHNOLOGY EDITOR
Laurianne McLaughlin

SENIOR EDITORS
Stephanie Gelston, Kim Nash,
Stephanie Overby

SENIOR WRITER
Thomas Wallgum

STAFF WRITER
C.G. Lynch

COPY CHIEF
Dave Gradijan

COPY EDITOR
Susan Bryant-Still

ASSOCIATE COPY EDITOR
Kristin Burnham

EDITORIAL ASSISTANT
Jarina D'Auria

EDITORIAL ADMINISTRATOR
Jill Paquette

CONTRIBUTORS

Rick Cook, Mary Hall Gregg, Galen Gruman,
Judi Hasson, Martha Heller, Steve Kelner,
Sumner Lemon, Reynold Lewke, N. Dean Meyer,
Fred O'Connor

DESIGN

EXECUTIVE DIRECTOR, ART AND DESIGN
Mary Lester

ART DIRECTORS
Terri Haas, Steve Traynor

ONLINE EDITORIAL

ONLINE EDITORIAL DIRECTOR
Christopher Lindquist

ONLINE MANAGING EDITOR
Michael Goldberg

SENIOR ONLINE EDITORS
Meridith Levinson, Shawna McAlearney,
Esther Schindler

ASSOCIATE ONLINE EDITOR
Diann Daniel

ONLINE WRITER Al Sacco

RESEARCH

RESEARCH MANAGER
Carolyn Johnson

SENIOR RESEARCH ANALYST
Seanna Maguire



CXO MEDIA INC.

INTERNATIONAL DATA GROUP
BOARD CHAIRMAN Patrick J. McGovern
PRESIDENT, IDG COMMUNICATIONS Bob Carrigan



©CXO Media Inc.

WHO COVERS WHAT www.cio.com/staff

E-MAIL letters@cio.com PHONE 508 872-0080

FAX 508 879-7784 ADDRESS CIO Magazine,

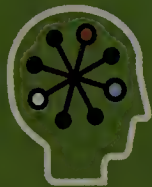
CXO Media Inc., 492 Old Connecticut Path,

P.O. Box 9208, Framingham, MA 01701-9208

WEBSITE www.cio.com SUBSCRIBER SERVICES 866 354-1125

• Fax 847 564-9453 • E-mail cio@omeda.com

REPRINTS AND PERMISSIONS • The YGS Group,
800 290-5460, ext. 150 • E-mail cio@theygsgroup.com



Alternative Thinking About Server Rooms:

ADDITION THROUGH SUBTRACTION.

Take away the jungle of cables. Take away the so-called "normal" energy requirements and maintenance. What do you have? Introducing the HP BladeSystem c3000. All the technology of our larger BladeSystem in an efficient, compact, affordable package.

Technology for better business outcomes.



Powered by the Quad-Core Intel® Xeon® Processor



See how less is more. Visit hp.com/go/nocompromise2
1-800-888-8430



1. Intel, the Intel logo, Xeon, and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and other countries. The information contained herein is subject to change without notice. © 2007 Hewlett-Packard Development Company, L.P.

All About the Links

I'll show you my connections if you show me yours



A friend of mine recently sent me a link to his Facebook account and encouraged me to join.

I just couldn't do it. Facebook seems to me to belong in the same general category as Tom Wolfe's best seller, *I Am Charlotte Simmons*, about a young woman who discovers that college is all about booze, sex and bad behavior. Facebook, I thought, is the domain of Gen Y. Boomers like me need not apply.

But his e-mail did have an effect on me.

The very next day, I received another one of those annoying invitations from a colleague encouraging me to join his LinkedIn network. And even though over the past few years I have, as a matter of habit, ignored these invites from people I know (and often from people I don't), this time, perhaps inspired by my brush with Facebook, I said to myself, "Why not?" and accepted. And surprise, surprise, I had forgotten that I had registered as a member of the LinkedIn community about a year ago and had about 150 standing invitations to get connected.

Over one weekend, I dived deep into LinkedIn and I was impressed. I connected with business colleagues and business friends, some whom I had not communicated with in more than 10 years.

Want to have some fun? Using me as your direct or second-level contact (since we're all members of the greater CIO community, yes?), let's build the largest audience of C-level execs on LinkedIn.

If you're a CIO, CTO or CSO, and a member of LinkedIn, invite me to join your network. If you want to join, but aren't a LinkedIn member, go to www.linkedin.com, register and then send me an invite.

I will not block my "connections" link on my account, so anyone who links to me will be able to see all my C-level contacts.

Let Gen Y have Facebook; I will take my LinkedIn network.

I look forward to linking with you.

Gary Beach, Publisher Emeritus
gbeach@cio.com



BUSINESS TECHNOLOGY LEADERSHIP

PRESIDENT AND CEO Michael Friedenberg
PUBLISHER Bob Melk
PUBLISHER EMERITUS Gary J. Beach

CXO MEDIA INC. CIRCULATION

SVP, CIRCULATION Carol A. Spach
SUBSCRIPTION SVCS. SUPERVISOR Tina Pescaro

CIO EXECUTIVE COUNCIL

GENERAL MANAGER Mark Hall
MANAGING DIRECTOR, PROGRAM SERVICES Shaw Lively
VP, DEVELOPMENT Dexter Siglin
VP, EXECUTIVE DEVELOPMENT Stefanie Egan
MANAGING DIR., CONTENT DEVELOPMENT Richard Pastore
MGR., GROUP SERVICES AND RESEARCH Michael Swenson
MARKETING COMMUNICATIONS MANAGER Jennifer Baker
SENIOR ARCHITECT Lawrence Coffin
DIRECTOR OF DEVELOPMENT Steve Rovniak
GROUP MANAGER, MEMBER SERVICES Carrie Mathews
SENIOR MANAGER, GROUP SERVICES Ellen Friedman
PROGRAM SERVICES MANAGERS David Best,
Joyce Dunnells, Michael Fahlsing, Andrea List,
Bill Roche, Janet Williams
PROGRAM SPECIALISTS Lisa Desmarais, Susan Hupp
CONTENT DEVELOPMENT SPECIALIST Diane Frank
DEVELOPMENT MANAGERS Bob Diack,
John Harrison, Michael Herrera, Kathy Mayer
DEVELOPMENT ASSOCIATE Kristin Bradshaw
SALES ASSOCIATE Jennifer Finn

EXECUTIVE PROGRAMS

VP, EXECUTIVE PROGRAMS Ellen Daly
DIR., EVENT MARKETING Mary Conroy
DIR., EVENT OPERATIONS Deb Begreen
SENIOR CONFERENCE PRODUCER Judith Kittredge
NATIONAL SALES MANAGER John Fondnazio
EVENT PLANNER Sarah Reagan
EVENT COORDINATOR Bethany Whiffin
CLIENT SERVICES SPECIALIST Cress O'Brien
CLIENT RELATIONS ASSOCIATE Erica Foster
SALES ASSOCIATE Nicole Blackburn

INFORMATION SYSTEMS

IDG DIR. OF INFORMATION SERVICES Nancy Newkirk
I.T. MANAGER Sean McCracken
SENIOR USER SUPPORT SPECIALISTS
Christopher A. Kay, Thomas Lupien
USER SERVICES SPECIALIST Gloria Lam
ASSOCIATE USER SUPPORT SPECIALIST James Brevard
SENIOR WEB DEVELOPER David Cohen
WEB DEVELOPER Sanghee Seo

PRODUCTION

VP, MANUFACTURING Chris Cuoco
PRODUCTION MANAGER Heidi Broadley
ASSOCIATE PRODUCTION MANAGER Lisa M. Stevenson

MARKETING

SR. DIRECTOR, MARKETING COMM. Sue Yanovitch
SR. MARKETING COMM. SPECIALIST Susan Murray
MARKETING AND PR SPECIALIST Lynn Holmlund

RESEARCH

RESEARCH MANAGER Carolyn Johnson
SENIOR RESEARCH ANALYST Seanna Maguire

ADMINISTRATION

COO Matt Smith
SENIOR FINANCIAL ANALYST, ONLINE AND
INTEGRATED PRODUCTS Chris Bernardi
ACCOUNTING SPECIALIST Amy Small
EXECUTIVE ASSISTANT TO THE PRESIDENT Diane Martin
FACILITIES SPECIALIST John Kelley
OFFICE SERVICES COORDINATOR Mary E. Wooldridge

HUMAN RESOURCES

VP, HUMAN RESOURCES Patricia Chisholm
HR REPRESENTATIVE Pauline Boyle



CXO MEDIA INC.

INTERNATIONAL DATA GROUP

BOARD CHAIRMAN Patrick J. McGovern
PRESIDENT, IDG COMMUNICATIONS Bob Carrigan



Innovations by InterSystems

Embed adaptable workflow.



For software developers seeking competitive advantages, InterSystems Ensemble® offers an easy way to make applications more valuable. Embed our rapid integration platform in your applications, and they will easily connect with the existing systems of your customers and prospects. Plus, Ensemble enables you to enrich legacy applications with adaptable workflow, browser-based user interfaces, rules-based business processes, and other new features that users want – without rewriting. Embed our innovations, enrich your applications.

InterSystems
ENSEMBLE®

Make Applications More Valuable

See a demonstration of Ensemble at InterSystems.com/Ensemble26F

InBox



Can You Outsource Innovation?

What a great topic! My experience on this ["What Does It Take to Get IT Outsourcers to Innovate," Oct. 15, www.cio.com/article/144400] reveals a few essential truths:

1. Despite the rhetoric, clients are generally unwilling to pay for innovation that takes the form of process improvement. For this reason, it is essential to gain clarity on how innovation is defined within the specific context of a client-provider relationship, and in terms that relate to value-creation for the client;

2. A client should select a service provider based, in part, on the ability of the relationship (not only the provider, but the combination of client + provider) to create value "outside the box" of the outsourcing scope;

3. There must exist specific shared accountabilities for bringing innovation candidates to the table. This is not a matter left to the delivery teams alone. This is a topic requiring "inter-

vention" at a regular tempo—looking for opportunities to deliver breakthrough capability; and

4. The investment models for innovation must vary by circumstance. The client and provider should agree on risk/reward terms through an informed dialogue around roles and responsibilities for achieving a new level of performance that is far from "business as usual."

"There must exist specific shared accountabilities for bringing innovation candidates to the table." —Peter Allen

The good news: There are emerging examples of progressive approaches to innovation through outsourcing, and great contractual frameworks to support attainment of a widened risk-reward window.

But remember that win-win implies that lose-lose is also possible.

PETER ALLEN

Falling Dollar, Rising Rupee

Very timely and appropriate article [From "Rising Rupee Rocks All Boats," Nov. 1, www.cio.com/article/143450]. The fall in the dollar and the rise in South Asian currencies (not just relative rise) are fundamentally changing the economics. Larger outsourcers with good treasury departments are, of course, hedged against the depreciating dollar. But there's a limit to how

long that benefit will last.

MARK DENNE

Successful Skills for CIOs

I read with interest the article on the future-state CIO model in the July 1st issue of *CIO* magazine. The results compare favorably with our own research at Santa Clara University. Ten years ago, we undertook a research study to understand what CEOs expected of their IT leaders. The results were subsequently published in *Business Horizons* [www.cse.scu.edu/~rdaniels/html/research/ceos.html]. Essentially, CEOs told us that their IT leader needed to have the same skills that they themselves possessed. Universally, they commented that their CIO did not have these skills.

Subsequently, we looked around to see where aspiring CIOs might acquire the skills that CEOs said they needed to have. We found many universities and training organizations did indeed teach many of the desired skills, but there was nowhere in the country at that time that they could learn these skills in a setting with other IT professionals. We felt the latter was important for the learning that would flow from their peers, and also to provide a "support" environment in which the IT people could openly share their concerns with one another. Our deliberations subsequently led us to develop the IT Leadership Program, which is now in its ninth year.

Your research does a wonderful job of further specifying the skills that successful CIOs need to have. I would only add that the understanding of what it means to be a "strategic" CIO is still very lacking. "Strategic orienta-



THOUGHTS ON THE EVOLUTION
OF THE DATA CENTER

Should I design
my data center
around *my* data,
or their network?
That's easy.

INTRODUCING THE BROCADE DCX.

There are two very different visions for how the world's data centers will evolve. For some, the decision is easy. With the new Brocade DCX™ as the foundation, you can evolve your data center around your applications and your data. The result? You can dramatically improve efficiency while reducing cost and risk—building on the technology you already own. Get the free white paper at www.brocade.com/dcx



BROCADE

© 2007 Brocade Communications Systems, Inc. All rights reserved. Brocade is a registered trademark, and the B-wing symbol and DCX are trademarks of Brocade Communications Systems, Inc.

"CEOs told us that their IT leader needed to have the same skills that they themselves possessed."

—Peter S. Delisi

tion" is necessary, but not sufficient, for becoming a CIO who understands and can use IT to influence the business strategy of the enterprise.

In addition to my work with the IT Leadership Program at Santa Clara University, I have been a strategy consultant to major corporations for the past 20 years. What I have learned is that there is a major difference between the ability to think strategically and

the ability to translate that thinking into execution. Many senior executives are brilliant strategic thinkers—able to think about their customers, markets, products and competition—but the research shows that these same thinkers are seriously deficient in their ability to translate this thinking into a process that galvanizes the people in their organization. As a result, we see from the research, for example, that only 5 percent of corporate employees understand their company's strategy and only 10 percent of strategic initiatives are successfully executed.

My point is that despite some excellent work on understanding future-state CIO competencies, we still have a long way to go before we truly understand and have a cadre of CIOs that understand business strategy, can think strategically and can translate

this thinking into successful execution for the enterprise.

PETER S. DELISI

President, Organizational Synergies
Fremont, Calif.

Situational Appraisal

We at Kepner-Tregoe read the article "Situational Awareness 101" by John Baldoni [www.cio.com/article/144450] with great interest and approval. As a global management consultancy specializing in the systematic application of thinking processes to resolve complex issues, problems and decisions in business contexts, we feel Mr. Baldoni's iteration of the role that knowledge around context, circumstance and consequence plays in creating awareness around a critical situation is compelling. With an understanding of these factors, a leader can more comprehen-



The bungee cord for the modern IT executive.

sively become aware of the situation.

To add to Mr. Baldoni's discussion, I would like to refer to a rational thinking process that we call "situation appraisal." This process transfers the "awareness" into "action" that the leader will have confidence in. Very simply explained, this process is one of:

- Identifying issues in a complex situation systematically
- Setting priorities based on factors related to current impact, potential impact and urgency
- Planning and setting expectations for responsibility
- Involving a decision process, a root cause process or a risk management tool for a complete resolution of the situation

For five decades, this systematic thinking process has been used for various types of business situations

ranging from assessing a customer's issue on a help desk to playing a critical role in setting organizational strategy. It can be used "rapidly" when fast response is needed or can be used expansively with large amounts of statistical data. The benefits of using this approach, whether individually or in groups, are a comprehensive, clear and shared understanding of the situation at hand, priority setting based on data and a commitment to the actions identified to resolve the issue completely.

Thank you for sharing Mr. Baldoni's

What Do You Think?

You can post your **THOUGHTS, COMMENTS, INSIGHTS AND OPINIONS** on CIO stories at www.cio.com. Your posts may be edited for length or clarity.

CIO.COM

initiating concepts. From those beginnings meaningful action may arise.

CHRISTOPH GOLDENSTERN

Global VP Technology Practice, Partner
Kepner-Tregoe Inc.

Successful Skills for CIOs

In response to your Web story "Soft Skills: Listening for Better Leadership" [www.cio.com/article/134800], listening is truly the only way a manager can gather all the facts needed. Group intelligence is more often than not greater than the sum of its individual pieces (Wisdom of Crowds). The manager must set the stage by being open and listening to his or her staff. Unless subordinates feel free to discuss issues, the CIO will only be given an answer that ratifies their own preconceived notions.

GARY WOLLMAN

You have to stretch. From directing your company's IT infrastructure — all the way to contributing to its business goals. You're the one pulled between two worlds.

Which is why you're the one who needs Cognos. We are the experts in performance management, delivering a single, Web-based SOA platform that works within your existing infrastructure. Unlike SAP and Oracle, we have 17 years of proven performance management experience, enabling organizations like yours to understand, plan, and monitor their business. And with over 23,000 satisfied customers already, we can put success within your reach.

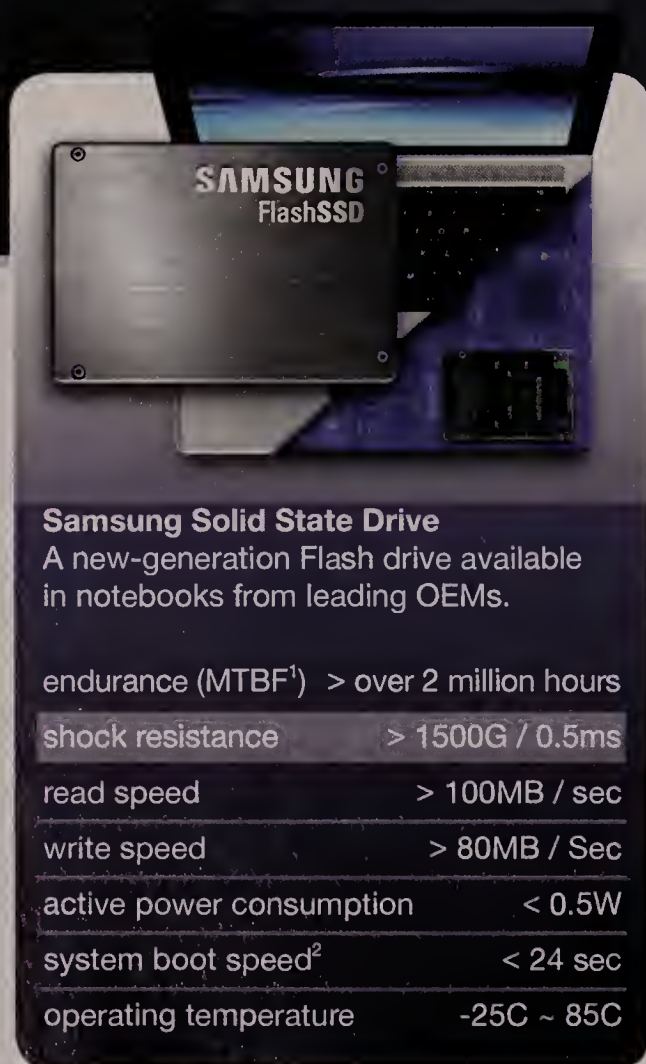
Proceed with confidence.™ To find out more, visit www.cognos.com/bungee today.

COGNOS®

THE NEXT LEVEL OF PERFORMANCE™



his notebook may
crash, but his
drive won't.



Samsung Solid State Drive

A new-generation Flash drive available
in notebooks from leading OEMs.

endurance (MTBF¹) > over 2 million hours

shock resistance > 1500G / 0.5ms

read speed > 100MB / sec

write speed > 80MB / Sec

active power consumption < 0.5W

system boot speed² < 24 sec

operating temperature -25C ~ 85C

solid state reliability

Introducing the new Samsung Flash Solid State Drive (SSD).

No moving parts, except some hardworking electrons. A mean time between failures (MTBF) six times longer than a hard drive. Virtually unlimited shock resistance. And power use that extends battery life up to 20%. With a Samsung SSD inside your notebook, your data is always there when you need it.

www.samsungssd.com

SAMSUNG

¹Mean Time between Failure

²HP NX9420, XP Pro, Core Duo Processor 2.0Ghz, 512MB RAM, ICH 7, i945 Chipset

© 2007 Samsung. All rights reserved.

trendlines

EDITED BY LAURIANNE McLAUGHLIN

NEW EXPECTED

Gen Y: Too Big for Its Britches?

HUMAN RESOURCES Call it a clash of cultures. Generation Y is colliding with older generations, and the differences among baby boomers (those born between 1946 and 1964), Generation X (born between 1965 and 1981) and Generation Y (born after 1981) in communication styles, job expectations and cultural frames of reference are creating tension in the workplace.

Gen Y, it seems, expects a constant flow of promotions, flexible schedules, lots of vacation time and more money—as if those benefits were its right, not something to be earned. But because Gen Y repre-

sents the workforce of the future, employers are changing their HR policies in response to its demands, according to a survey of 2,546 hiring managers and HR professionals conducted by Career-Builder and Harris Interactive.

The survey results reveal major differences in the way Generation Y, Generation X and baby boom

employees communicate.

The Gen Y frame of reference tends to be influenced by blogs, Internet sites, and the like, so its communications “tend to be abbreviated and at times abrupt,” writes Rosemary

Continued on Page 18



A Real, Not Virtual, Data Center Problem

STAFFING IT leaders continue to battle to find virtualization experts and other technical specialists to staff data centers, new research shows. A whopping 86 percent of data center managers said they struggle to find qualified applicants for data center jobs, according to Symantec's latest “State of the Data Center” research report. Furthermore, 52 percent of respondents said that their data centers are currently understaffed.

The news isn't great for the people toiling in those data centers right now, either: Symantec's results show that these employees may want to develop an emerging specialty like, say, server virtualization or storage virtualization. And maybe they should develop those skills sooner rather than later. Sixty percent of data managers called their staff's skill sets too narrow. And more than half, 57 percent, said their employees' skills don't match

their current data center needs.

Looking at the bigger picture for data centers, 69 percent of respondents to the Symantec study said their data centers are growing at least 5 percent per year; 11 percent said they're growing 20 percent or more per year. During the past two years, the average budget increase was 7 percent.

A full 90 percent of respondents said they're at least discussing server virtualization. What applications are most frequently running on virtualized environments? Fifty-nine percent of respondents said Web applications are the most likely to run in a virtual environment; 42 percent said database management applications.

The Symantec study queried almost 900 data center managers worldwide, in Global 2000 companies and large public-sector institutions. —Laurianne McLaughlin

Four **BI Trends** Savvy Users Should Know

BUSINESS INTELLIGENCE It's helped restaurants decide what dishes to add to their menus and it's helped retailers determine what dresses to stock. And BI is growing. A Gartner study found it to be this year's number-one technology priority. Here are four key BI trends having an impact today.

1 Demand Is Rising. "Organizations are recognizing they don't have the information they need," says Bill Hostmann, a Gartner vice president and distinguished analyst. Oh, the data is there, but it's trapped in different silos. And often, definitions of the same data vary from silo to silo, negatively influencing how and which numbers are reported.

2 The Market Is Consolidating. Independent BI companies may soon be a memory. Oracle bought Hyperion in February. In October, SAP made a bid for Business Objects. Last month, IBM announced its intention to acquire Cognos. Next target? MicroStrategy. As big vendors acquire smaller ones, it will become easier to get BI, but users may be left with fewer choices.

3 Convergence Is Happening. Unstructured data is a rich source of information and companies are looking to harness it. For example, retailers could add comments from e-mail and call centers into a BI application to enhance their market analysis, says Forrester principal analyst Boris Evelson.

4 New Apps Are a-Comin'. The next generation of BI applications is moving beyond pie charts and bar graphs. Products like JMP (from SAS), Spotfire (from Tibco) and others provide more creative—and useful—visualization of data and trends. Alternative ways of displaying data will continue to proliferate in the coming years. (For more on BI in action, see "BI in All the Right Places," Page 29.)

—Diann Daniel



No Gold Medal for Online Ticketing

I.T. DISASTER The 2008 Olympics gave up on online ticketing last month after a crush of buyers crashed the system.

The Beijing Organizing Committee for the Olympic Games will instead offer tickets through a lottery system, with ticket applications accepted from Dec. 10 until Dec. 30.

The system crashed shortly after sales began on Oct. 30.

During the **first hour of operation**, the website received **8 million page views**, with an average of **200,000 ticket requests** filed **every minute**. Designed to handle 1 million visits per hour and a maximum of 150,000 ticket requests per minute, the system could not cope.

—Sumner Lemon, IDG News Service

Gen Y

Continued from Page 17

Haefner, CareerBuilder's VP of HR, in an e-mail. Consequently, the tone and meaning of those truncated, abbreviated messages can be misunderstood by boomers and Gen X.

Another difference between Gen Y and older workers that creates tension is Gen Y's expectations of how it will be treated on the job. A whopping 87 percent of survey respondents said some or most Generation Y workers feel more entitled to receive better compensation and benefits and faster career advancement than older workers do.

And older workers aren't the only ones who believe that Generation Y acts annoyingly entitled. Seventy-three percent of hiring managers and HR professionals age 25 to 29 also said Gen Y workers expect more money, promotions, flexible work schedules and vacation time.

Gen Y has been so vocal about what it wants that employers are beginning to take notice. Fifteen percent of employers said they changed their HR policies or implemented new ones to cater to Generation Y workers. Among the changes they've made:

- 57 percent introduced more flexible work schedules.
- 33 percent implemented more recognition programs.
- 26 percent give employees more access to state-of-the-art technology.
- 26 percent increased salaries and bonuses.
- 24 percent offer more training.
- 20 percent pay for cell phones and BlackBerrys.
- 18 percent offer more telecommuting options.
- 11 percent increased vacation time.

Haefner notes that "as companies' culture evolves with each generation, you'll see all workers benefiting from a variety of viewpoints and work styles." We'll see.

—Meridith Levinson



The more you have to store, the more reliability matters.

Fujitsu ETERNUS® Storage Systems: Uncompromising
reliability for your most demanding applications.

To help enterprises manage the flood of mission-critical data, Fujitsu ETERNUS Storage Systems deliver the reliability and availability data centers require. For continuous data access and easier maintenance, major components are redundant and hot-swappable. The controller modules' software can also be upgraded without shutting down or rebooting. A built-in statistical failover mechanism ensures stable operation by disabling components exhibiting intermittent failures. Furthermore, disk data encryption using 128-bit AES provides security against data theft. The ETERNUS Storage Systems range from the new, low-cost ETERNUS 2000, designed for small and medium businesses; to the ETERNUS 8000 designed for large enterprise applications and is available with up to 1PB of storage. Go to us.fujitsu.com/computers/reliablestorage for more information.

DATA PROTECTION—Online, efficient disk-to-disk
backup using tiered storage



DISASTER RECOVERY—Cost-effective WAN
optimization, secure remote data replication over
iSCSI with IPsec data encryption


FUJITSU

THE POSSIBILITIES ARE INFINITE

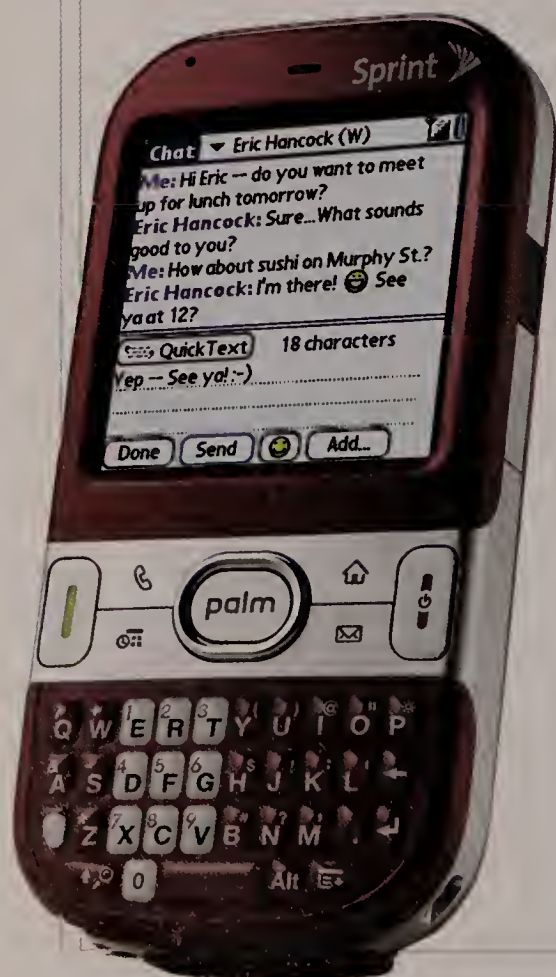
holiday gift GUIDE

bling & sensibility

BY KRISTIN BURNHAM

It's Not About Status; It's a Phone, Dammit

Still not willing to pony up the cash for Apple's iPhone? Palm's wallet-friendly alternative—the **Centro smartphone**—sells for a mere \$99 with a new contract from Sprint. Centro is Palm's smallest handheld—measuring just over 4 inches in length and weighing 4 ounces. It comes equipped with a full keyboard, AIM and text-messaging capabilities, and speedy Internet for Web searches. \$99. www.palm.com/us/products/smartphones/centro

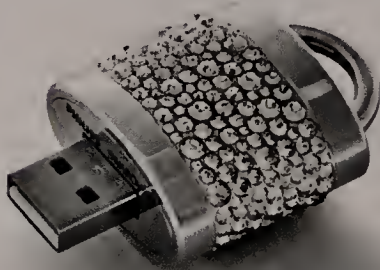


"Mr. Flash Drive, I Presume"

Its name is Key. **IronKey**. And it's the world's most secure flash drive. Designed so you can safely browse the Web and transport data, this James Bond-worthy flash drive also protects against phishing and pharming attacks, ID theft and keystroke loggers. Forgot your password? You've got 10

consecutive tries before—yup, you guessed it!—the device (internally) self-destructs, wiping its drive clean as a whistle. \$79-\$149. www.ironkey.com.

If more glam is what you seek, check out **Swarovski's crystal-encrusted USB Memory Key**. \$178. www.swarovski.com



A Sense of Where You Are

Everybody hates traffic, but now you can say goodbye to gridlock thanks to The Sharper Image's **TomTom ONE 3rd Edition GPS Portable Navigation System**. It comes with real-time traffic and weather info and allows you to choose your route—the shortest, the most scenic or the toll-free. The wallet-size device features a 3.5-inch, antiglare touch screen. \$250. www.sharperimage.com/us/en/catalog/product/sku_TT115



Looking Good!

Talk the talk and look the part in these sporty shades. Motorola and Oakley have created **O ROKR PRO Bluetooth Stereo Eyewear**—sunglasses that connect wirelessly to your mobile phone and Bluetooth-enabled music player. These specs promise protection from harmful rays, and up to 100 hours of standby time. \$249. <http://oakley.com/pd/5217/17805>



I WORK IN A MIXED-IT
ENVIRONMENT. NOW MY
OPERATING SYSTEMS CAN TOO.

INTEROP **ABILITY**

DOWNLOAD THE
COLLABORATION
ROADMAP

It's the ability to have Microsoft® Windows Server® and SUSE® Linux Enterprise Server from Novell® work together. And the ability to run both with more confidence. It's Microsoft and Novell working together to reduce costs and complexity with new solutions for virtualization, directory integration, systems management, and office document translators—each with clearly defined intellectual property rights. So you can take compromise out of the data center and put simplicity and efficiency in.

Download the collaboration roadmap at www.moreinterop.com

Novell® **Microsoft®**

Copyright © 2007 Novell, Inc. and Microsoft Corporation. All Rights Reserved. Novell, the Novell logo and SUSE are registered trademarks of Novell, Inc. in the United States and other countries. *Linux is a registered trademark of Linus Torvalds. Microsoft and Windows Server are trademarks of the Microsoft group of companies.

Will You Be Lucky in Lucknow?

OUTSOURCING Bhubaneswar. Lucknow. Gandhinagar. Ahmedabad. These are just a few of the new hot spots for outsourcing shops in India. Never heard them? Don't feel too bad. Yet.

A recent article in India's *Economic Times* says the country's tier 1 outsourcing providers are increasingly looking to tier 2 and even tier 3 towns to set up their latest campuses, as real estate and the cost of living have skyrocketed in the bigger cities that served as the unofficial headquarters of India's IT services boom.

In other words, Bangalore is out. Kochi is in.

While attracting entry-level employees to jobs in the tier 2 municipalities hasn't been terribly difficult, management talent has proven harder to attract. Middle managers are more concerned about issues like schools, health care and quality of life than their younger counterparts, and some workers have career concerns, wondering if a move to a second-tier location is more a detour than a move up the ladder.

"Most tier 2 centers are currently bottom-heavy, and the complexity of work is not that high," Pari Natarajan,

CEO of outsourcing research firm Zinnov, tells the *Economic Times*.

Outside of India, in less mature markets like Latin America, IT services providers are jumping to second-tier cities from the get-go. "You can take some of the best practices from India and look at second-tier cities to set up a large center," says Juan F. Ferrara, chief operating officer for the Americas for India-based IT service provider Genpact. "You're already seeing that in Brazil and Argentina."

So what happens when India's tier 2 (or even tier 3) cities grow as expensive as their more mature counterparts? Will offshore service providers or their customers consider locating the work in the U.S.? Don't bet on it. There were several media reports this year of a few Silicon Valley companies bringing jobs back from Bangalore in response to rising wages and retention problems. But such cases will probably remain the exception, not the rule.

Tier 4, anyone?

—Stephanie Overby

No Consultants Need Apply

ON THE MOVE Landing a CIO job has never been easy for consultants. Companies, especially big ones, tend to shy away from candidates with consulting backgrounds, worrying that they lack the tact, political savvy, and ability to operate with an existing IT staff and within a limited budget necessary to be successful, says Steve Kendrick, an executive recruiter with Spencer Stuart's global information officers practice.

So if you're a consultant, your best bet is to market yourself to small and midsize companies. Smaller companies with growth goals often seek to



Brian O'Connell

leverage your experience working in different industries or with other companies in the same industry.

A number of consultants have recently bucked the trend and landed CIO jobs:

Brian O'Connell proved his mettle to The Hartford Financial Services Group after working on a project for the company while employed by Accenture. He was hired as CIO of Hartford Life in October.

Jeremy Gill had been advising \$651 million engineering firm Michael Baker on its information security practices when it hired him as its vice president of IT, also in October.

Roger Johnsen provided executive IT consulting services to iTerra Communications and Google before being hired as \$10.8 million Intraware's vice president of IT in September.

Steve Dewsnap had been working for Mace Security International as an independent consultant for five years before the \$49 million defense products company hired him in September.

Tim Kutz worked in Accenture's global forest products practice before joining privately held paper and packaging distributor Unisource Worldwide in August.

So, consultants, don't despair. There's prejudice out there, but you can beat it.

—Meridith Levinson

**DO YOU KNOW
WHO HAS SHIPPED 2X
THE WIRELESS LAN
SWITCHES OF ANY
OTHER COMPANY?**



YOU DO NOW.
MOTOROLA ENTERPRISE WLAN

Depend on the market share leader for all your wireless LAN needs.

motorola.com/100switches

BY **FRED O'CONNOR**

Head of IT HR

job description: The head of IT HR handles the recruiting, screening and interviewing of job candidates for an IT department. Executives in this position need to report to the CIO while maintaining a relationship with human resources, says Andy Zaleta, partner and coleader of the technology practice in the Americas for executive search firm Battalia Winston International. Although this job requires a presence in both departments, heads of IT HR are “doomed to fail” if they straddle the line between IT and HR, says Zaleta. This person is ultimately responsible for handling IT’s staffing needs and should maintain a focus in that realm, he says. Large companies that value employees who truly understand a firm’s technology often hire for this position.

what to look for:

Candidates must blend methodical, detail-oriented traits with innovative and creative skills. A person who is a total techie may lack the social skills that recruiting demands. However, a smooth personality without an IT background isn’t the right match either, Zaleta says. A person in this job must also be comfortable with transitioning between two distinct roles.

elimination

round: Ask a candidate how she would handle a job that needs to be sensitive to corporate politics. People who don’t realize that they need to maintain equanimity and stay above the fray won’t work out well.

why you need

one: Companies have become specialized in the types of technology they use and develop, says Zaleta. This specialization often requires new hires who can use or support an organization’s key applications and IT systems. Traditional HR personnel may not rec-

ognize that a candidate’s experience with a technology may not translate to their own organization, which may use different products. For instance, a candidate’s past familiarity with SAP’s business-intelligence software may not be relevant at a company that uses Oracle BI products.

desired skills:

Strong knowledge of IT. Undergraduate degree with technology or HR focus is a must. A head of IT HR is “not going to write code, but knows what makes someone successful in that function,” says Zaleta. Good sales and communica-

tion skills are also key to help sell candidates on a company and its jobs.

how to find them:

This is a burgeoning position, according to Zaleta, so finding a qualified candidate may prove challenging. Try regional IT professional organizations since people in certain fields tend to cluster geographically. For example, IT workers with financial services or retail experience tend to congregate in New York. Look also for candidates with less formal titles such as director of talent or head of talent acquisitions, especially at technology companies.

**salary
range**

**\$75,000 to
\$150,000**
plus bonus,
depending
on level

growing your

own: Look for technologists on staff who understand the company’s IT structure but who also have an outgoing personality that lends itself to sales and marketing. They’ll need to learn about human resources, but those skills are easier to teach than IT.

IT Risk Management

*Rising to the Top of
CIO Agendas*

Inside

- Current research results
- Case studies
- Best practices



Custom Solutions Group



symantec™



The vulnerability of your business

is connected to the enormity of your IT infrastructure

is connected to an accurate assessment of the risks involved

is connected to solutions that manage security, availability, and compliance

is connected to Symantec Global Services for results that shine

from assembly line to the bottom line.



© 2007 Symantec Corporation. All rights reserved. Symantec and the Symantec Logo are registered trademarks of Symantec Corporation.

Manage IT risk and cost across your entire operation with the unmatched expertise of Symantec.

The first step in dealing with IT risk is to quantify it precisely. Our expert assessments quickly give you the necessary input to select the appropriate solution to fit your needs and budget. And once IT risk is mitigated, the cost advantages throughout your enterprise can be dramatic. Realize the potential in your operation with the help of the Global Services team from Symantec. To contact a representative call 1-877-870-5700 or visit symantec.com/confidence

Confidence in a connected world.



symantec™

IT Risk Management

Rising to the Top of CIO Agendas

Security challenges need to be tackled within a broader understanding of IT risks.



In CIO Magazine's 2007 "State of the CIO"

annual survey, respondents were asked for the first time about IT's role in risk management. A third of the respondents reported that IT was actively improving IT risk management. Asked where IT had a positive impact on business in the past year, respondents put "improved security risk management" in the top five of IT accomplishments. And among IT management priorities for the year ahead, business continuity risk management was ranked third among all priorities.

These findings align with other IT indices and demonstrate how IT risk management is now a significant priority on CIO agendas.

Symantec's Vision for Managing IT Risk

As businesses increasingly depend on IT to automate processes and manage information, IT risk has become one of the most significant drivers of business risk that organizations face. A quick scan of recent headlines reveals how IT failures have become synonymous with business failures in many organizations.

A variety of factors are fueling IT risk. Rapid changes in the security

threat landscape and a proliferation of compliance regulations are two examples. A third is growing complexity in IT operations caused by global expansion, the proliferation of heterogeneous systems, mergers, acquisitions, growing data volumes and more.

IT risk includes security, availability, performance and compliance elements, each with its own drivers and capacity for harm. A successful strategy for managing IT risk can reduce risk exposure in each of these areas, but it can do much more. For example, to drive out risk, organizations must embrace best practices for governance, reporting and change

management, which also reduce IT complexity and bring new levels of efficiency.

Developing a deeper understanding of IT risks can also create greater capacity for innovation. In recent decades, IT innovations have opened new markets, established new business models and driven incredible gains in productivity. None of this would have been achieved, however, if IT teams didn't have the confidence to embrace new technologies or combine existing technologies in new and innovative ways. As the impact of IT failures on business results becomes more pronounced, organizations that understand IT risk are in the best position to continue using IT to drive competitive advantage.

Consider the ING Renault F1 Team in Oxfordshire, England. They rely on large volumes of real-time data from races around the world to make rapid changes to car surfaces—all to shave fractions of a second off of race times. The ING

The key is taking a holistic approach and aiming for simplicity.

to drive alignment with the business. Historically, IT used technical, domain-specific language in its side of the dialogue, recasting business issues in terms of SLAs, recovery-time and recovery-point objectives, incidents and response time. The most successful new-infrastructure strategists now ask:

- Which business processes contribute most to corporate competitiveness—that is, which are the most distinctive compared to competitors?
- Which processes, if shocked or interrupted, could most severely jeopardize the health of the business?
- To which technology risks are these critical processes most exposed: security, availability, performance or

over-investment or risky under-investment in technologies and processes that protect the business from harm. IT risk and cost can be balanced for optimal returns.

Understanding IT Risk

In Symantec's view, IT risks may be classified in four ways:

- Security risks—unauthorized access, alteration or use of information
- Availability risks—inaccessible-business processes or data
- Performance risks—delayed access to business processes or data
- Compliance risks—violating legal, regulatory or IT policy requirements.

To address growing interdependencies, it is important to look at risk across these areas holistically. Many organizations are starting to create positions with titles such as managing director of IT risk for this very purpose.

Symantec recently conducted a yearlong study based on in-depth, structured interviews with more than 500 IT professionals around the world, and published the results as the *IT Risk Management Report: Trends Through December 2006*. The study revealed many surprising insights into current

Organizations that understand IT risk are in the best position to continue using IT to drive competitive advantage.

Renault F1 Team uses a combination of Symantec products and services to manage availability and backup data. These protection measures help them achieve success with a competitive strategy that depends on IT.

IT risk management also provides a common language that IT can use

compliance?

- How should we allocate infrastructure investments—in people, processes, technology and information—for the best overall balance of risk and cost?

By aligning IT with business needs, organizations can avoid costly

practices and perceptions of IT risk exposure.

For one thing, expectations of failure are disturbingly high. A full 60 percent of organizations expect a major IT incident at least once per year. Fifty-eight percent expect a major data loss at least once every five years. Whereas many other parts of business operations aspire to zero defects or zero accidents, most IT organizations have yet to set a target of zero IT failures.

The study further identified substantial differences in the estimates of IT risk exposure supplied by IT operational personnel and executives. In fact, differing internal viewpoints on IT risk and poor alignment between IT risk management programs and overall business objectives may themselves create risk. This can occur when risk management programs are not tailored to the specific risk profile of the business or coordinated across functional and business unit lines—leading to areas of both under- and over-investment.

Furthermore, poor organizational support for IT risk awareness and training is both an example of poor alignment and a major cause of IT risk exposure. In fact, best-in-class IT risk management requires a disciplined approach that includes everything from IT risk awareness to the creation of a sustained IT risk management program, complete with performance measurement and a model for continuous improvement.

IT Risk Management: Where to Get Started

Many organizations lack the proper skills and resources to assess and address IT risk through a systematic approach that aligns IT with business priorities. Symantec Foundation IT Risk Assessment helps customers take the first step toward a comprehensive IT risk management program.

Kenton Hoover, Senior Manager for solutions within Symantec Global Services, recommends following the five-step approach used by Symantec:

- Develop an awareness and understanding of specific IT risks to your business—security, availability, performance and compliance.
- Quantify risk exposure as much as possible and prioritize risk areas for remediation.
- Understand the range of tools available for managing IT risk and design a solution.
- Align IT risks and costs with the business to find the right level of investment and implement the solution.
- Develop a systematic ongoing capacity to manage IT risk.

The key is taking a holistic approach and aiming for simplicity. None of these steps or concepts has value if they only add complexity. “In some cases, we see IT organizations undergoing a risk management effort just to get through an audit, or because there has been some kind of incident and everyone’s hair is on fire,” says Jennie Grimes, director of Symantec’s IT Risk Management

Focusing on Risk and Security at Kettering Medical Center Network

Kettering Medical Center Network (KMCN), a group of five hospitals and 51 medical facilities in the Dayton, Ohio, area, is at the forefront of efforts to improve the quality of healthcare.

For Bob Burritt, manager of network and technology services at KMCN, and his team of 33 IT professionals, the main focus is keeping the 5,000 connected devices of KMCN’s network up and running to support 7,500 staff professionals in their mission of healing. “Nobody understands the value of prevention like a hospital,” says Burritt. “We put a premium on spotting and stopping small problems before they become big ones.

“If our network is down because of a security incident, or for any other reason, we calculate that our organization would lose a million dollars of revenue a day,” says Burritt. From a field of 23 security vendors who responded to their enterprise security assessment RFQ, they eventually narrowed the field to three—and then ultimately selected Symantec Consulting Services. “Symantec showed us it not only had the capability to conduct our security assessment,” Burritt recalls, “it also gave us the big picture of what our secure environment should look like—and did so more effectively than any other vendor.”

Lessons Learned at Temple University

On the first day of each fall term at Temple University in Philadelphia, thousands of young men and women arrive loaded with clothes, books, posters, sports equipment—and laptop computers, many of which are carrying their own baggage in the form of viruses, worms, Trojans, spyware and ad-ware. With more than 14,000 users connected to its network, including its annual crop of students, Temple was plagued with crippling attacks and illegal file sharing. After taking a piecemeal approach to solving these problems, the Temple IT team was ready to look for more holistic solutions.

In response, Symantec Consulting Services performed a security analysis, recommended best practices, designed policy, implemented the required infrastructure and deployed the Symantec Network Access Control (SNAC) solution. “The team supported us all the way from installation through deployment and beyond,” says Seth Shestack, Assoc Director of Information Security.

“Now when a student tries to connect to the network, Symantec Sygate Enterprise Protection performs a series of checks,” Shestack explains. “It looks for the SNAC agent and Symantec Endpoint Protection. Threat definition files and patches must be up to date, and Windows Automatic Update must be enabled. Sygate ensures a base level of protection for every machine on the network, every time it connects.”

Program Office. “That’s understandable and human,” she says. “But the idea of adopting a five-step approach is healthier for organizations than simply committing random acts of IT risk management.”

Putting Security Risk in Perspective

The past few decades have seen tremendous change as evolutions in communication have made new forms of interaction possible. We are more connected to each other than ever—and in more ways than ever. Expectations have grown to the point where most business workers expect to access information and conduct business whenever and wherever they desire. To satisfy expectations and create the confidence that will drive the next generation of innovation, IT security experts must protect an expanding array of connection points and communication channels.

Take mobile communications, for example. Almost one in five businesses has already experienced financial loss due to attacks via mobile data platforms, according to a global survey by the Economist Intelligence Unit. More than 60 percent of companies are holding back on deployment, citing security concerns. In fact, security concerns are the biggest obstacle to the widespread adoption of wireless and remote computing in businesses worldwide today.

When it comes to security risks, Symantec has established some of the most comprehensive sources of



security threat data in the world. For instance, the Symantec Global Intelligence Network, consisting of more than 40,000 sensors monitoring network activity in over 180 countries, tracks attack activity across the entire Internet. Data is used to drive the Symantec Internet Security Threat Report as well as key Symantec offerings like Symantec Managed Security Services.

The version of the Symantec Internet Security Threat Report published in September covers data collected from January through June 2007 and offers some ominous conclusions. In particular, the report states that today’s threat landscape is more dynamic than ever. As security measures are developed and implemented, attackers are rapidly adopting new techniques and strategies to circumvent them. Attacks are more likely than ever to be targeted, delivered through a combination of vehicles, and even crafted by tools that are created through a standard software development life cycle.

The Importance of an Endpoint Protection Strategy

When addressing endpoint protection—security at the desktop and laptop levels—it's critical to have technology that can solve the clutter of competing, sometimes incompatible applications that actually end up increasing vulnerability. One key is to implement solutions that deliver advanced threat prevention in a single agent. This single-agent approach is critical to the manageability of security and to stopping threats where they originate.

Properly conceived and executed, endpoint protection reduces the administrative costs associated with managing multiple endpoint security products by bringing together the best available technology. This provides operational efficiencies and a fully integrated solution that can work across platforms.

Similarly, by integrating network access control and security into a single endpoint agent, Symantec enables customers to more quickly and easily deploy Symantec Network Access Control, and provides significant operational efficiencies such as single software and policy updates, unified reporting, and unified licensing and maintenance.

To address the evolving threat landscape, organizations need a comprehensive approach to security that includes the following:

- Definition of security policies that comply with regulations and align with business priorities
- Technology for endpoint protection across laptops, desktops, servers and mobile devices
- Technology for managing email security and database security while preventing data loss
- Tools for security management that handle event logs, distribute patches and track configurations
- Operational best practices for threat management, incident response and secure application development.
- Optimized organizational design that leverages Managed Security Services Providers and/or augments staff with third-party experts as needed

- A reporting infrastructure that provides customized dashboards to executives responsible for governance.

Taking the First Step

Symantec offers solutions comprised of products and services that reduce exposure to security risk and address each of the points outlined above. Comparable solutions are available to help customers address IT risks related to availability, compliance and performance. If you're unsure which areas of IT risk are the highest priority for you to address first, Symantec Foundation IT Risk Assessment is an excellent place to start.

FOR MORE INFORMATION about Symantec Foundation IT Risk Assessment please visit www.symantec.com/itrisk.

The Increasingly Ominous Security Environment

In its worldwide surveillance of security threats, Symantec has observed that the current threat landscape is characterized by new and worrisome characteristics, including:

- Increased professionalization and commercialization of malicious activities
- Threats that are increasingly tailored for specific regions
- Increasing numbers of multistage attacks
- Attackers targeting victims by first exploiting trusted entities (such as employees or partners)
- Convergence of attack methods.



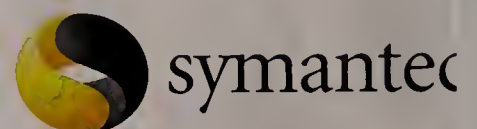
The supplier is connected to the regional buyer
is connected to the channel partner
is connected to the supply chain management system
is connected to the malicious code which was just eradicated by
the world's leading enterprise security company.



© Symantec Corporation. All rights reserved. Symantec and the Symantec Logo are registered trademarks of Symantec Corporation.

Enterprise security software that gets to threats before they get to you. Crimeware. Malicious users. Data leakage. The threat landscape is constantly changing. Symantec can provide you with global, 24/7 protection to safeguard every layer of your enterprise—from your mobile devices to your data center. Our Global Intelligence Services proactively monitor emerging threats to make sure your business is always protected. Visit symantec.com/confidence

Confidence in a connected world.



CALL FOR ENTRIES

21ST ANNUAL AWARDS COMPETITION

1000

IT Makes Winners.

You can't beat the competition by standing still.
And you can't move ahead without the edge
technology provides.

**We want to know how IT makes your
company grow.**

We're celebrating all the innovative ways that IT can deliver a competitive advantage to the enterprise. Perhaps you took a risk on an emerging technology or deployed the tried and true in a new way. Maybe you built a better business process or fostered closer collaboration. Or you found ways to get closer to existing customers, to pursue new markets, to save money, to make more.

If you can show measurable results of technology innovations that have enabled or led the way to greater success for your organization, then our readers—your peers—want to know about you.

Be recognized as one of the CIO 100.

Apply now for the 21st Annual CIO 100 Awards.

Deadline: Feb. 14, 2008

CIO 100 honorees will be recognized at the annual CIO 100 Symposium & Awards Ceremony, Aug. 24–26, 2008, at The Broadmoor in Colorado Springs, Colo. Honorees—and their winning ideas—will also be featured online and in the Aug. 15, 2008, issue of *CIO*.

To learn more about the CIO 100 Awards and get an application, go to www.cio.com/cio-awards/cio100/index

Presented by



WE'RE



Xerox Global Services helps organization
Result? Service levels up. Processing cost

Where are mission-critical documents when you need them? In a file cabinet? A computer? Our professional and document outsourcing services digitize and manage critical

business processes, taking paper and manual steps out. The results are a dramatic reduction in processing costs, a significant improvement in workflow, and a distinct

xerox.com/retrieve 1-800-ASK-XEROX

RETRIEVE



find, modify and manage documents instantly.
down. There's a new way to look at it.

competitive edge that comes from working faster and
more efficiently than your competition. Who do we retrieve
for? JPMorgan Chase & Co. and Enterprise Rent-A-Car

Company. We can do the same for you. To see how we
handle everything from accounting and contracts to
HR and legal, visit us today at xerox.com/retrieve.

XEROX®

Technology

Document Management

Consulting Services

CONVERGENCE CHAOS: WHAT'S YOUR UPSIDE?



Video games are selling ad space; production studios are releasing content via broadband providers; P2P networks are disrupting top-down distribution. Across the board, technology and media are rapidly merging, altering revenue models along the way. Marsh's Communications, Media & Technology Practice offers a holistic view of the critical operational and financial risks facing companies, and helps them find opportunities in the new-media space. The upside? A business model positioned for future growth. To learn more, visit findtheupside.com/cmt

FIND THE UPSIDESM **MARSH**



MARSH MERCER KROLL
GUY CARPENTER OLIVER WYMAN

ESSENTIAL technology

FROM INCEPTION TO IMPLEMENTATION—I.T. THAT MATTERS

Edited by
Laurianne McLaughlin
lmclaughlin@cio.com



Think of
operational
business
intelligence
as a cool
sleuthing tool to
help you
spot and fix
problems as
soon as possible

BI in All the Right Places

BY GALEN GRUMAN

ANALYTICS | It's a frustration every CIO has experienced: Business users complain that they're not getting the performance or results they expect from their enterprise applications, yet IT's investigations continue to show that systems are working within specifications. At Freescale Semiconductor, CIO Sam Coursen faced this issue when he joined the chip manufacturer a year ago: During the expensive fabrication process, some wafers containing microcircuits had defects that couldn't be traced. Those defects became visible only after the wafers had passed through several systems or factories. "Until we could bring all the systems together for analysis, we couldn't see the pattern end to end," he recalls, "So as a bad process went on, it damaged more and more product. But the causes were not obvious, so we couldn't fix it quickly."

Student loan provider SLM (better known as Sallie Mae) faced a similar problem, recalls Jo Lee Hayes, VP of enterprise technology. Some loan applications didn't get completed, but IT couldn't see what was causing applicants to give up. Each system along the way checked out fine, but only when her IT staff could analyze the end-to-end process did it realize the aggregate state was flawed. Essentially, the underlying business processes weren't meshing well or delivering as expected. A portion of customers would abandon loans being processed, and some percentage of those customers would call for sup-

port, increasing the cost of loans. The current fix: "With Tealeaf Technology and Coral8 (analytics software), we can identify specifically which Web page the customer was on prior to calling," Hayes says. Her team gives that data to support agents and analyzes spots where the Web drop-offs occur frequently.

One way CIOs can gain operational analytics capability is to use a single application suite that can monitor the relevant data in the right context as it flows through the system. But that's not realistic for enterprises. "Processes don't fit into single systems anymore," Hayes notes. And although Coursen is consolidating many applications into an ERP system, he still expects to have at least a half dozen other key systems, such as manufacturing execution, product data management and customer relationship management systems, across which processes will run. "SAP's BI tools are only good for what's in SAP," he notes, so such application-specific analytics won't help.

Both IT leaders say they had a revelation: While operational BI requires a common platform on which to do its

traditional data warehouse analysis, reporting tools generate canned reports each month for detailed views of, say, financial performance, and analysts later trudge through the mounds of cleansed data.

A Smarter Data Warehouse

By comparison, approaches like the ones taken by Coursen and Hayes—often dubbed operational BI or in-line process analytics—let managers use current analysis to make decisions with little or no delay. What these solutions don't do is replace people as the center of that decision making.

Generally, the approach to cross-process operational analytics that Coursen took is the more common one, notes Matthew Liberatore, a professor of operations and decision technology at Villanova University, currently leading a new group in BI and analytics.

Coursen continues to rely on a data warehouse as the repository of mounds of enterprise data, extracted and transformed into common formats, with common context and analytic rules applied. But he differentiates what data is col-

"We can tell someone, 'Stop! You're about to do something suboptimal here.'"

—Vincent Biddlecombe, CTO, Transplace

analysis, that platform need not be an application suite like ERP or CRM. For Coursen, that common platform is his data warehouse; for Hayes, it's her Web-based transaction environment. Both say they were able to bring business intelligence closer to business processes, so business managers and IT staff alike can now detect problems and make decisions within a time frame that is most effective. This approach moves away from the time-honored BI tradition of gathering lots of data and then analyzing it later. Similarly, in

lected, staging more time-critical data so it's gathered more often. He also adds some operational data that might not otherwise have been collected. That lets him update the data warehouse with certain data on a daily or even more frequent basis, then run operationally oriented analytics using Tibco Software's Spotfire tool against just the timely data sets.

The production data, for example, travels to the data warehouse as soon as it is generated, so the production analysis tools can run constantly, look-

BI Toolbox

Business intelligence (BI) applications and analytics applications used to be distinctly different, but the lines have blurred, says John Hagerty, a director at AMR Research. That's particularly true at the operational analytics level, where CIOs could just as easily use tools designed to analyze specific processes or to do predictive analysis as they could the analytics components of their BI suites.

Among the dozens of analytics vendors, many focus on specific industries or processes, such as pharmaceutical or transportation. A new class of analytics vendors offers complex event processing—analytics geared to understanding process flows rather than just data correlations. Providers include Coral8, IBM, Sherrill Lubinski, StreamBase Systems, Tibco Software and Truviso.

But to get to the analytics, you first need to get to the operational data. Among the many products for this task (beyond the standard extract, transform and load products associated with data warehouses), the leading vendors include Teradata and major BI vendors such as Cognos, Business Objects (soon to be part of SAP), Infor, Microsoft, Oracle's Hyperion unit and SAS Institute.

—G.G.

ing at results from all fabrication stages at once to identify issues.

In essence, the data warehouse handles multiple types of analysis while serving as a single repository for IT to manage, reducing complexity. "I can leverage all my previous investments by having the data all in one place," Coursen says, instead of trying to retrofit a common analytics system into multiple applications and keeping them



I am Technology Execution

Staffing Services
Team Services
Component Services
Workforce Management Services

**...and the enterprise software applications project manager
that will help you meet your company's objectives.**

I come equipped with extensive project management expertise, earned from a lifetime of navigating Fortune 500 companies through unpredictable challenges.

At this point in my career, I take on assignments where I can make the biggest impact, and relish any opportunity to make order out of disorder and deliver an error-free platform.

When I decided to work with a technology staffing and services firm, it was clear TEKsystems had the best reputation and client roster. Given their international footprint and market leadership position within the U.S., I determined they alone offered the widest range of opportunities. But, all things considered, I was impressed most by their professionalism, integrity, and passion to satisfy.

In this regard, their ability to match talent to task is backed up by diligent and conscientious customer service. All of which proves the point that as a client or a Technical Professional, you couldn't be in better hands.

My name is Grant, and I am Technology Execution.
What do you need done?

Go to www.teksystems.com or call 888-835-7978 for more information.

TEK people YOU CAN TRUST. results YOU CAN COUNT ON 
systems.

Technology Consulting from Accenture.

Our work with businesses and governments around the world reveals a clear pattern: high performers set themselves apart by positioning information technology as a strategic asset and a partner to the enterprise. Findings from our comprehensive ongoing research confirm that pattern.

Accenture Technology Consulting helps bridge the gap between an organization's existing IT capabilities and its vision for high performance. We draw upon extensive resources and experience to enable our clients to achieve their goals:

- Aligning IT strategy with business value
- Building an enterprise architecture "blueprint"
- Improving service levels between IT and the business
- Standardization, consolidation and virtualization of IT infrastructure
- Consolidation and transformation of networks
- Maximizing workplace technologies and collaboration tools
- Improving security across IT infrastructure and applications
- Renewing legacy applications to achieve greater flexibility and performance
- Improving IT processes
- Engineering performance into system and application development life cycles

To learn more about Accenture Technology Consulting, visit accenture.com/technology



Are you investing in IT? Or just spending on IT?

How you perceive your IT investments may well determine what you get out of them. While some focus on the outlay, the highest-performing businesses focus on the return. They use their IT investments to drive innovation, productivity and growth. To see how Accenture Technology Consulting can help you do the same, visit accenture.com/technology

• Consulting • Technology • Outsourcing

accenture
High performance. Delivered.

integrated over time.

Like Coursen, Gustavo Rodríguez, IT director at Mexican regional airline Aeroméxico Connect (formerly Aerolitoral), has several key application suites that handle key operations. So he needed a way to analyze processes across them for the mid-market airline company. Rodríguez also implemented a staged data warehouse that updates and analyzes maintenance fleet status, commercial and finance data, and several other operational indicators daily. This helps business and operations managers adjust schedules and fares quickly, based on factors ranging from changes in referrals from partner airlines to the effects of bad weather on passenger bookings. Some data—such as passenger information and fare yields—is updated hourly for analysis by Bitam's BI tools.

Transportation logistics provider Transplace, also a mid-market company, has similarly adopted the staged-data approach, notes CTO Vincent Biddlecombe—but with a twist. Because Transplace has developed most of its transaction systems in-house, it can bring some of the business rules underpinning the analytics as close as possible to transactions themselves. "We can tell someone, 'Stop! You're about to do something suboptimal here,'" he says. (The person retains the decision-making authority, since sometimes there's a good reason to make a suboptimal process decision, Biddlecombe notes.)

Transplace IT accomplishes this by tweaking the applications to update the data warehouse more frequently and trigger the analytics using Microsoft's BI tools as part of certain transactions—not as a separate process for IT to manage. "We're trying to blur the distinction

between the transaction system and the BI system," Biddlecombe says.

The staged-data approach does require some tweaking to the traditional reporting and analysis tools and to the data, says Coursen. Most notably, data needs to have an "as of" date because it's no longer all updated simultaneously. Some analyses require that several pieces of data be updated at the same time, so the data staging has to take that into account. Hayes took a different approach to achieving a common analysis target. She applied complex event processing technology from Coral8 to the Web-based transaction systems that customers use to manage their loan applications.

This let her staff analyze processes in real time based on the user's clickstream data, regardless of which loan application or back-end transactional system was processing the loans. (A loan process can touch as many as 13 applications, she notes, and Sallie Mae processes about 20,000 loan applications each day, each of which involves multiple business processes.)

The same technology helps detect fraud in real time, such as by comparing a user's IP address against the location stated in the online application form.

The limitation of Hayes's approach: It relies on Web clickstream data, which exposes the current transactions' state and associated data so they can be intercepted in real time. Hayes hopes that such capabilities will be more available directly via enterprise service buses or other process-coordination systems as service-oriented architecture becomes more widely adopted.

Avoid Data Overload

While it makes sense to bring some analytics closer to the processes for key operations, CIOs need to be careful not to overdo it—for their own sake as well as for their users', says John Hagerty, a director at AMR Research. Many processes don't need to be monitored in real time or even several times a day, he notes.

Top BI priorities today: **50%** of enterprises say overall data quality, and **37%** say data integration from operational source systems.

SOURCE: IDC

"Clients have a hard time consuming information more than daily," Hagerty says. Also, the infrastructure that is needed to analyze the bulk of enterprise operations on a near-real-time basis is too great for most enterprises to justify the investment, he says.

And don't underestimate the human issues, which typically boil down to "Can we trust this is the right thing to do?" Davis says. There's reason for that distrust: People still need to make the complex calls.

But CIOs can ensure that those calls happen earlier in the process, when they can have the greatest benefit. "It's really an opportunity for IT to be a hero to the business," Hayes says. "Business now has insight into completion rate baselines that they did not have before, as well as improved insight into how our customers are using our online product. As the business absorbs this data, they can begin to optimize our business processes." **CIO**

Galen Gruman is a frequent contributor to CIO. You can reach him at ggruman@zangogroup.com.

How Much Data Is Too Much?

For more advice, see **MANAGING THE FLOW OF REAL-TIME DATA** at www.cio.com/article/26674.

CIO.COM

VOLUME 3 EDITION 1

YOUR **DATACENTER** SHOULD NEVER BECOME A

BURNING INFERNO

SPECIAL OFFER

GET ALL 3

BOBBLEHEADS
THE HOTHEAD,
POWER ZAPPER &
SPACE MONSTER

If your datacenter temperature has got you hot under the collar, we can help. We're **Digital Realty Trust**, the largest owner and operator of datacenters in the industry. Since we've purchased and developed over \$2 billion in datacenter assets, we know a thing or two about delivering facilities with efficient cooling architectures. To learn more, download our whitepaper, "Cooling Your Datacenter" at www.digitalrealtytrust.com/hothead



DIGITAL REALTY TRUST

Advice for Aspiring CEOs

It's never too soon to start preparing yourself to become the boss

Remember back in college, when you blew off your study group in favor of an all-night kegger? Or when you decided you could live with a 3.2 GPA if it meant meeting more coeds? Most likely, you've experienced some remorse over strolling through those four expensive years and not making the most of every learning opportunity. How would your life be different if you actually took advantage of all that your college had to offer?

The good news is you have another chance at greatness. Your CIO role, if managed correctly, can be the perfect place to prepare for becoming a CEO. And it's no wonder. With their unique role in the enterprise, CIOs are well positioned to develop the attributes of a great CEO. As Michael Capellas, former CIO and CEO of Compaq, former CEO of MCI and currently, CEO of First Data, puts it, "CIOs have to be experts at solving complex problems. They have to be precise and experienced planners, they have to spring into operational mode, and they have to be more global than their peers."

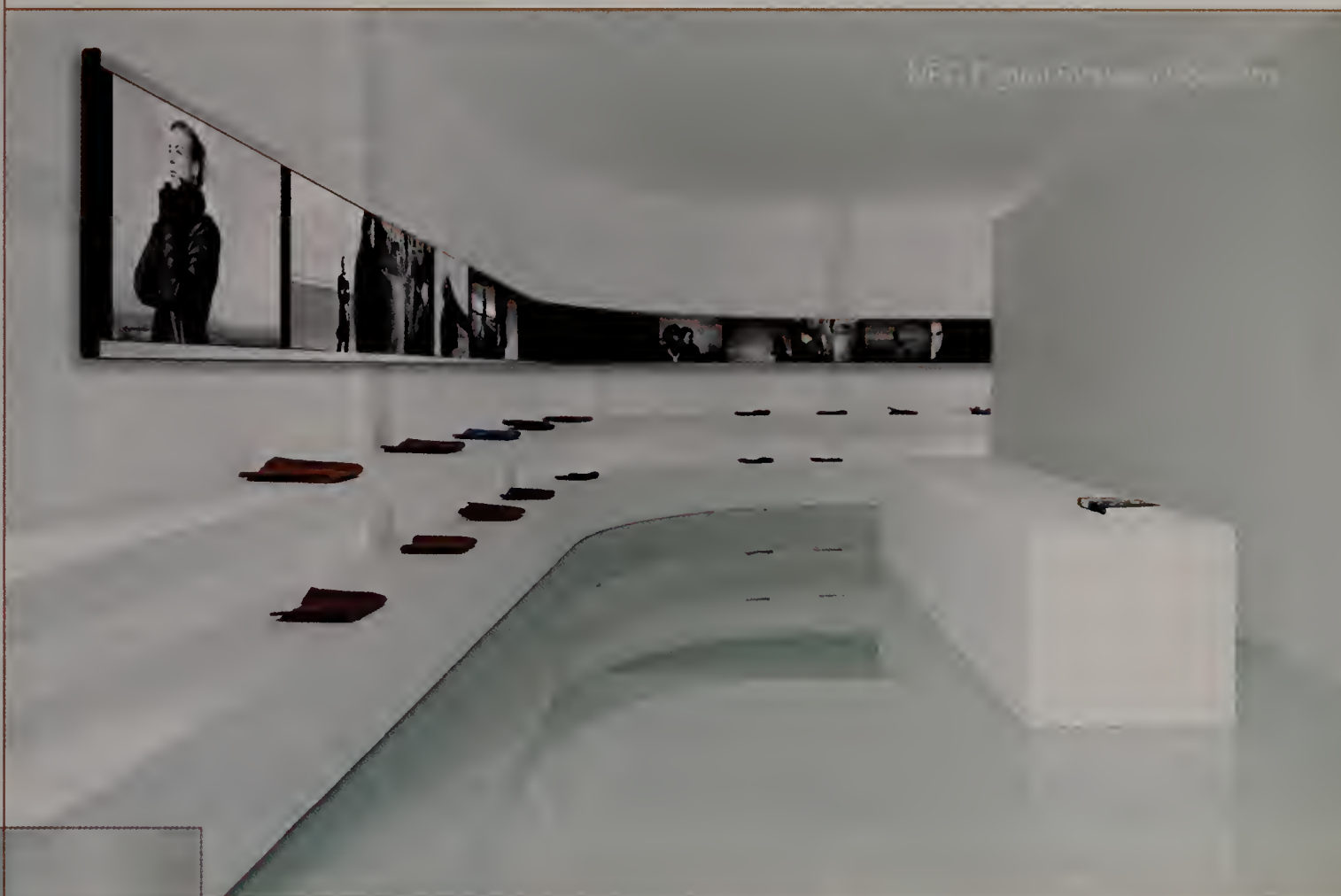
Those CIOs who take advantage of the opportunity to build on these foundational skills—rather than strolling along in their current role—may well find themselves in the top corporate spot. So what can CIOs do now to prepare themselves for

the corner office? I asked four CIOs-turned-CEOs to share their perspective on what it takes to become a CEO.

Learn to balance internal and external demands.

"The CEO has a much larger group of external constituencies including the board, investors, partners and customers, and has to know when to prioritize the internal versus the external," says Capellas. "When I became CEO of Compaq, my first priority was to be the voice of the customer and to go on 100 customer visits and see them all. I thought that it was absolutely the right thing to do until I realized I was on the verge of being an absentee leader."

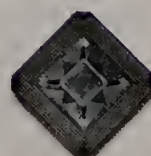
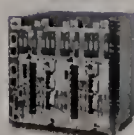
CIOs have a tendency to prioritize their internal demands over their external constituents. If that is the case, you will have to work on striking a balance.



What happens when a technological achievement also happens to be a fashion statement?

Whether they are a strong message for brands in flagship stores, a bright centerpiece for high-end home entertainment systems, or an image carrier in business conference rooms and control centers, digital signage solutions from NEC, a global leader in IT and networking, offer professional-grade components and network connectivity that reflect a new age in visual communications – where style and substance converge. NEC. Empowering you through innovation.

www.necus.com/digitalsignage



IT SERVICES AND SOFTWARE ENTERPRISE NETWORKING AND COMPUTING SEMICONDUCTORS IMAGING AND DISPLAYS

Change up your management style. As CIO, you manage people with different skill sets—application developers, operations people, project leaders—but most of them have a direct relationship to IT. “As CEO, you have a far more diverse group of people to manage—HR, finance, product development, sales—and you have to learn to relate to them in different ways,” says Capellas. CIOs who find that one management style fits all will have to work some variety into their routine in order to meet the CEO’s management challenge.

Run IT like a business. For CIOs who truly aspire to the CEO seat, Capellas offers an exercise. “Think of yourself as the CEO of your own business with two truly unique attributes. Demand for your services will always be higher than your ability to supply them,” he says. “And everybody is an expert in your consumer business but nobody understands your enterprise business.” According to Capellas, if you can manage those significant business conflicts in a way that keeps all your customers happy, you will have developed the relationship and sales skills to make it as CEO.

Develop your “minors.” As a CIO with a “major” in technology, you may have quite a few “minors” to develop before you are ready for general management. Just ask Michael Curran. During the late ’90s, Curran was promoted from CIO of Scudder Stevens & Clark (now Zurich Scudder Investments) to a series of general management roles, including COO. In 2001, he became CIO of the Boston Stock Exchange, and in 2005, he became its CEO.

“All CEOs have a major in something and they’ve had to build their knowledge of other functions off of that core,” says Curran. CIOs should do the same, he says. “Take a course in

contract law and negotiation, learn balance sheets, learn something about marketing. If you’re working globally, read a book about each country you’re visiting,

learn a foreign language.” With a pretty serious day job on your hands, you cannot expect to develop expertise in each of these areas, but you can, according to Curran, “get good enough so that you don’t embarrass yourself.”

Scale your conception of systems relationships. “CIOs live in a systems world, and they understand the interdependencies among the elements of the systems—the hardware, the apps, the networks, the third-party vendors,” says Curran. “If you can scale that notion of interdependencies to a broader level that includes boards and governance, product management, people, services and sales, you will be able to adopt the CEO mind-set.”

Your CIO role, if managed correctly, can be the perfect place to prepare for becoming a CEO.

Plan a transitional move into general management. From 1996 to 2000, Chris Lofgren served as CIO of trucking company Schneider National. At the same time, he became president of its logistics business. In 2000, he was promoted to COO. He became president and CEO two years later. “With the exception of a technology company, it is highly unlikely that a company will promote a CIO directly to the CEO position,” he says. “It makes more sense that a CIO would aim for a role running a business unit—one that is driven more by information—before attempting the CEO role.”

Expand your approach to time. “When planning major technology projects, CIOs think about a one- to three-year time frame,” Lofgren says. “When CIOs think about their company, their shareholders and leaving a legacy to the next generation of leadership, the time frame expands to a decade.” As challenging as technology forecasting is, if you start working long-term goals into your plans now, you will be better prepared when your job demands it.

Report to the CEO. In 1998, John Andrews, CIO of CSX, left the \$9.6 million railway company to get into the startup world. After a few years of launching technology companies, he became CEO of Giga Information Group in 2002 and president and CEO of Evans Data in 2003. From his experience on both sides of the IT leadership fence, he believes that reporting structure has a major impact on whether a CIO can gain the right experience for the CEO role.

“If you report to the top and have a seat at the table, you have a much better perspective of what it takes to be a CEO,” says Andrews. “You have a broader view of the business and an opportunity to collaborate at his or her level. If you are reporting to the CFO, you are one layer removed from where the action is and you need to make a change.”

Be sure you want the job. “While the CIO role does have similarities to the CEO role, the CEO role is a major step up in terms of scale, pressure, constituency influence, time commitment and external visibility,” says Andrews. “You don’t want to make the leap before you’re ready.” If you quake at the thought of having your every move—your acquisitions, sales forecasts, hirings and firings—scrutinized by shareholders, the government, Wall Street and the public, you may want to think again about vying for the job. **CIO**

Martha Heller is managing director of the IT leadership practice at ZRG, an executive recruiting firm in Boston. Reach her at mheller@zrgroup.com.



Join the Conversation

Respond to **MARTHA HELLER's** latest online column by visiting www.cio.com/author/41283.

CIO.com



Scale.

**Grow your enterprise
without outgrowing your storage.**

In the enterprise, data protection means more than just backing up data. It means safeguarding massive amounts of information globally – all while navigating complex internal and regulatory requirements. That's why the world's largest enterprises rely on SEPATON virtual tape library (VTL) and data deduplication solutions. SEPATON's ContentAware™ approach helps enterprises to reduce risk and improve operational efficiency in the data center.

Learn how SEPATON can scale to meet your enterprise data protection needs. Visit www.SEPATON.com/scale. Or call **866.SEPATON**.

SEPATON®

Consensus Builder

You need rules for running—and using—IT. And the people who have to live with these rules need to help make them. That's the best way to ensure that your IT policies won't constrain your business.

Danny was military, and he makes sure you know it. His colleagues grumble that he acts like he's the commander. Danny likes discipline and controls, especially when he's the one with his hand on those controls.

As assistant to the CIO, Danny was put in charge of policy. He was dubbed the “policy czar.” Danny set about violating my Golden Rule of Organizational Design:

Never separate accountability from authority. In doing so, he set himself up as a policy decision maker rather than, as he should have been, a policy facilitator.

Who Decides IT Policies?

Policies are constraints on the way we work—a “how to” procedure or a “you must” requirement. The dictionary defines policy as “a definite course or method of action selected from among alternatives and in light of given conditions to guide and determine present and future decisions.”

A policy, once established, narrows one's choices about what to do, how to do it or which alternative to choose. Danny, as you can see from the following exchange, enjoyed his authority to prescribe choices for the rest of his organization.

During a leadership-team meeting that I attended as a consultant, I asked Danny which policies he felt he was responsible for. His answer was, “All.” (I was disconcerted that he neglected to add “sir” to the end of his terse reply. I thought that was policy.)

“All?” I asked incredulously.

“All,” he replied assertively.

“Even those that apply to a single line of business, like the policy on what gets connected to the network?” I queried.

“Absolutely,” Danny answered. He seemed annoyed that I had the insolence to ask.

Undaunted, I pressed on. “How do you go about setting policies?” I inquired.

Danny described a process that was essentially this:

■ Danny decides which policy to work on next.

Where work and play intersect at high velocity.

Introducing MOTO Q™ Global, one of AT&T's fastest 3G smart devices. Equipped with GPS, Windows Mobile® 6, and a full multimedia experience, it's one of the most advanced voice and data devices of its kind. And it comes with your choice of a free "My Q Paks" customized application. Get the best of both worlds while you're working and playing around the globe.

- > Check email, IM, and browse the Web at mobile broadband speeds.
- > Access turn-by-turn GPS navigation with TeleNav.®
- > Play videos, listen to music, and take pictures.
- > Only AT&T's 3G network allows you to talk and download data simultaneously.
- > AT&T has the broadest global coverage of any U.S. carrier.



MOTO Q™ Global only from AT&T

\$199⁹⁹

after \$150 in mail-in rebate debit cards with 2-year wireless service agreement on personal or PDA data plans and eligible voice plan.



The new



at&t

Your world. Delivered.

Call 866-9-ATT-B2B Click wireless.att.com/motoqglobal Visit your nearest AT&T store

AT&T also imposes monthly a Regulatory Cost Recovery Charge of up to \$1.25 to help defray costs incurred in complying with State and Federal telecom regulation; State and Federal Universal Service charges; and surcharges for customer-based and revenue-based state and local assessments on AT&T. These are not taxes or government-required charges.

Not available on select phones. Coverage not available in all areas. Limited-time offer. Other conditions and restrictions apply. See contract and rate plan brochure for details. Subscriber must live and have a mailing address within AT&T's owned wireless network coverage area. Up to \$36 activation fee applies. Equipment price and availability may vary by market and may not be available from independent retailers. **Early Termination Fee:** None if cancelled within the first 30 days; thereafter \$175. Some agents impose additional fees. **Unlimited voice services:** Unlimited voice services are provided solely for live dialog between two individuals. **Offnet Usage:** If your minutes of use (including limited services) on other carriers' networks ("offnet usage") during any two consecutive months exceed your offnet usage allowance, AT&T may at its option terminate your service, deny your continued use of other carriers' coverage, change your plan to one imposing usage charges for offnet usage. Your offnet usage allowance is equal to the lesser of 750 minutes or 40% of the Anytime minutes included with your plan (data offnet usage allowance is the lesser of 6 megabytes or 20% of the kilobytes included with your plan). **Rebate Debit Card:** Price of Motorola Q before mail-in rebate debit cards, data package purchase, voice plan purchase, and with 2-year contract is \$349.99. Allow 10 to 12 weeks for fulfillment. Card may be used only in the U.S. and is valid for 120 days after issuance date but is not redeemable for cash and cannot be used for cash withdrawal at ATMs or automated gasoline pumps. Card request must be postmarked 12/31/07; you must be a customer for 30 consecutive days to receive card. **Sales tax** calculated based on price of unactivated equipment. Certain email systems may require additional hardware and/or software to access. Motorola and the Stylized M Logo are registered in the U.S. Patent and Trademark Office. ©2007 Microsoft Corporation. All rights reserved. Microsoft and Windows Mobile are either registered trademarks or trademarks of Microsoft Corporation in the U.S. and/or other countries. Service provided by AT&T Mobility. ©2007 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo, and all other marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies.

Policies reduce people's choices and can make an organization less flexible, more bureaucratic and less creative. But a well-chosen and well-written policy does more good than harm by establishing a consistent, meticulous process or necessary constraints that help leaders run an efficient, customer-focused, safe and reliable business.

setting priorities from among a list of potential policies that he generates, as well as considering requests by others within the department.

- Danny drafts the policy, perhaps drawing on his peers as subject-matter experts.

- After a private briefing by Danny, the CIO approves the policy (in some cases with the input of a steering committee representing the business units).

- Danny enforces compliance.

The Problem With Top-Down Policy-Setting

I looked around the room at Danny's peers, and then asked one final question. "Danny, you said you are responsible for all policies, even those that affect only a single line of business. Who here is accountable for the safe, reliable, efficient operation of the network?"

Without hesitation, Danny pointed to Rob, the head of the network operations group.

And now we see the crux of the problem: How can Rob be held accountable for the quality of service of his network, while Danny is deciding policies that dictate how Rob does business?

This is a violation of that Golden Rule. Rob, with accountability but without concomitant authority, wasn't empowered to run his business his way; yet he was still held accountable for results. A cynic might say that he was set up to become a victim and a scapegoat.

On the other hand, even if Danny accepted Rob's input on the policy, Danny's power to write the policy (and his de facto power to get it approved) gave him authority over Rob's business. With authority but no accountability, Danny could easily become a tyrant. His peers feared exactly this.

Compounding this problem, the managers didn't have the authority to establish the policies they needed to run their businesses. Danny became a bottleneck; he could work on only a few policies at a time, and he chose his priorities. Whatever he didn't think was important enough sat at the bottom of the list.

For example, Allie is responsible for

intranet services. Her clients have asked for an enterprise instant messaging service, but she has delayed deployment for two years, awaiting a policy regarding its use. Her proposed policy is still in the hopper awaiting Danny's consideration.

The need for policies was not in question. This IT department had grown in size and complexity, and it needed to mature. It needed to improve its consistency, safety, reliability, efficiency, resource controls and business focus. Policies were necessary to facilitate all these goals. But the way Danny implemented them demoralized the staff and threatened the performance of the entire IT organization.

Ways Policy-Setting Can Be Distributed

The IT organization's problem centers on who has the power to decide policy. If Rob is to be held accountable for the quality of service of his network, then Rob—and only Rob—should be empowered to determine policies on its operation and its use.

In general, according to the Golden Rule, policies should be determined by the individual or team that is accountable for whatever business is constrained by these policies.

For example, some policies apply to the entire enterprise. Think about security policies for passwords, and the rules for using the corporate intranet. Policies that affect the entire enterprise should be decided by a consensus of the leaders of the enterprise. As difficult as that may be to achieve, it's the only way to ensure that the policy reflects everybody's input and is by far the best means of gaining enterprise-wide compliance.

Other policies apply to the IT department. A policy for getting IT to work on your projects might state that if you wish to do business with IT, your project must either be funded through an established portfolio-management process or you must show up with cash in hand. Such policies affecting one department should be decided by the head of the department, ideally with the consensus of his or her leadership team.

A third group of policies applies to a specific line of business within a department. For example, the network opera-

Best Policies

One of today's big IT policy headaches: **MANAGING MOBILE DEVICES**. Read how CIOs at Aflac, Primerica and other companies handle the challenge at www.cio.com/article/28177. Read how Northrop Grumman sets **I.D. MANAGEMENT POLICIES** at www.cio.com/article/14774.

cio.com

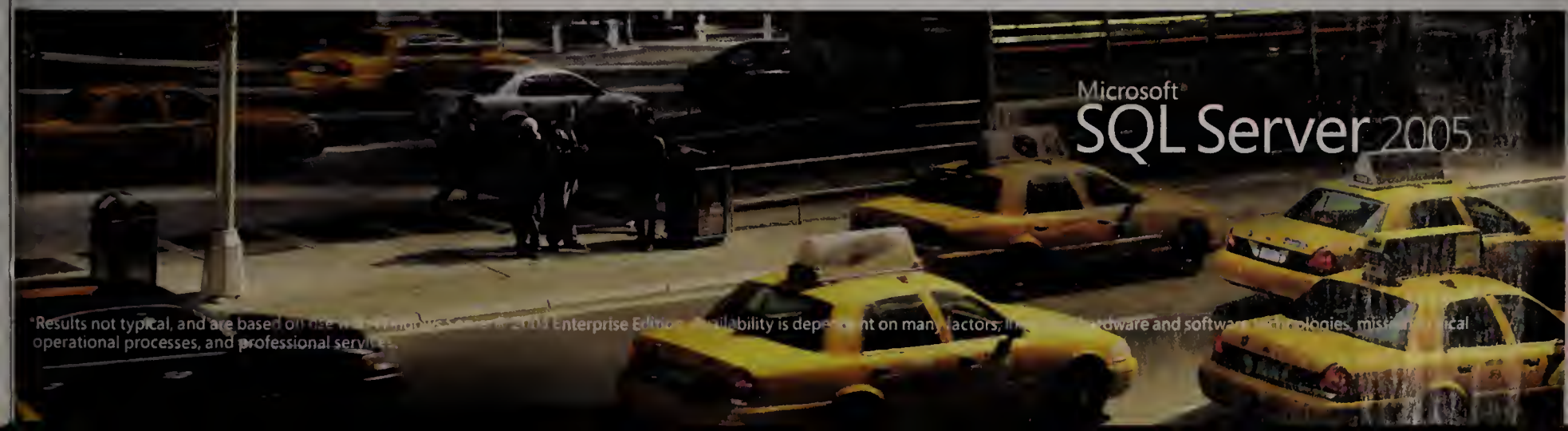
Your potential. Our passion.

Microsoft



A Stock Market Processing 300 Million Transactions a Day.
Running on Microsoft SQL Server 2005.

NASDAQ, the largest U.S. electronic stock market, lists companies from 35 countries. Their crucial trading and messaging systems use SQL Server™ 2005 to handle over 200,000 transactions per second with 99.99% uptime.* See how at microsoft.com/bigdata



*Results not typical, and are based on use with Microsoft SQL Server 2005 Enterprise Edition. Availability is dependent on many factors, including hardware and software configurations, mission-critical operational processes, and professional services.

tions group may establish a policy that says that if you don't meet certain safety requirements, you cannot connect to the backbone network inside the corporate firewall. One could even use the word policy to describe the operating procedures within a group, such as how problems are handled in a call center and which design tools and methods are used to engineer applications.

Policies that affect a single group (such as network operations) should be decided by the leader of that group. Policies that affect a number of groups within a department, though not the whole department, should be decided by a consensus of the leaders of those affected groups.

The Role of a Policy Group

Is there any circumstance in which Danny's approach might work? Consider those policies that are departmentwide and hence should be decided by the CIO and, ideally, her leadership team.

Even here, Danny had it upside down. He declared himself the "prime contractor" for policy development and considered the subject-matter experts his "subcontractors." That is, Danny felt that he was accountable for the delivery of

policies, and others were there to help him do so. Danny was selling other people's expertise (in the form of the content of policies).

However, the purpose of a policy group is to help others translate their expertise into policies, not to do it for them (or to them). An effective policy group "sells" the following products and services to its peers:

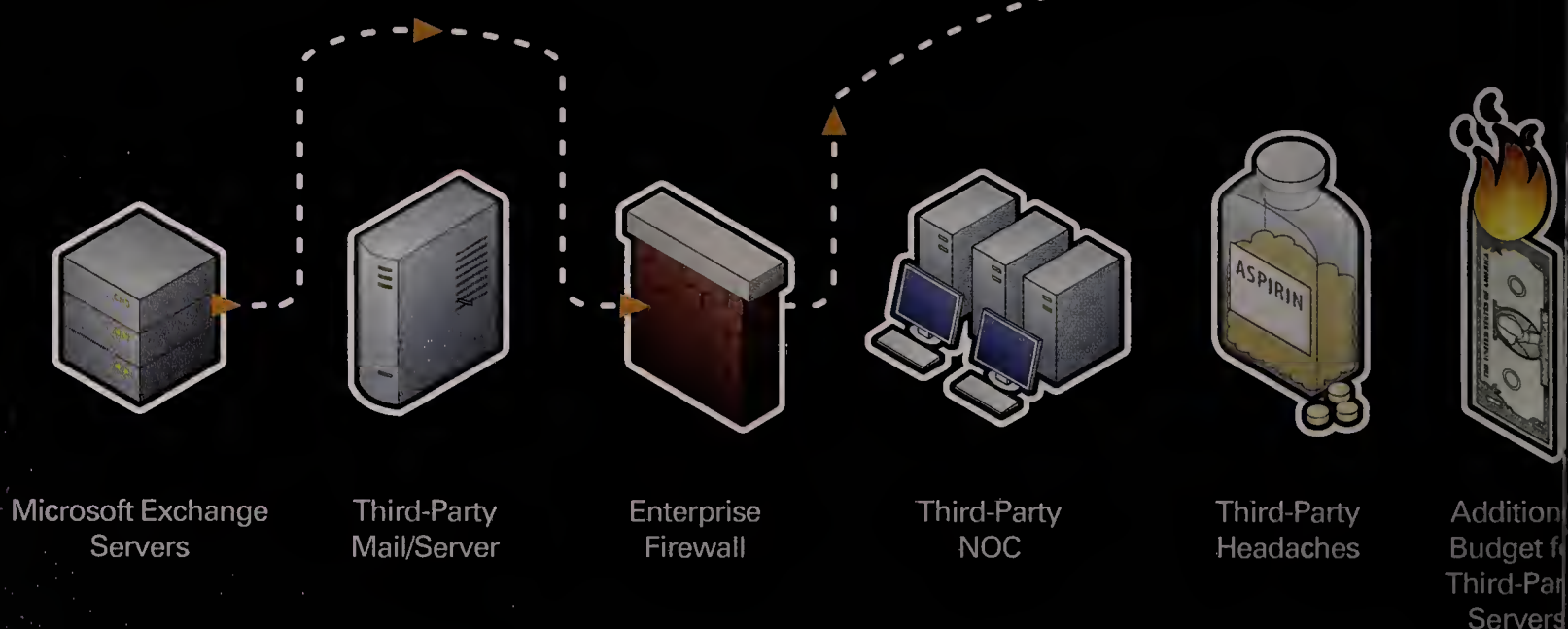
- **Policy process facilitation.** A policy group can help an organization's leadership team accumulate, prioritize and come to consensus on departmentwide policies, and it can facilitate enterprisewide consensus on enterprise policies. In this role, the policy group is strictly a process facilitator, not an author, decision maker or "czar."

- **Policy editing and advice.** It can help subject-matter experts craft well-worded policies, providing expertise in how to define and phrase an effective policy. This expertise can help everyone write policies that are practical and effective without being bureaucratic, inflexible, disempowering or expensive to administer.

- **Policy library.** It can maintain a repository of policies, communicate their availability, and help people access and interpret existing policies.



at&t



A policy group should not be responsible for the content of the policies or have any authority over that content. And it must never be involved in auditing compliance. This would be a conflict of interest. No one can both serve others (policy facilitation) and stand in judgment of others (audit) without undermining the teamwork between the policy group and its peers.

Why All This Work Is Necessary

Policies are inherently risky. They reduce people's choices and can make an organization less flexible, more bureaucratic and less creative.

But in many cases, policies are necessary. A well-chosen and well-written policy does more good than harm by establishing a consistent, meticulous process or necessary constraints that help leaders run an efficient, customer-focused, safe and reliable business.

Policies that affect the entire enterprise should be decided by a consensus of the leaders of the enterprise. As difficult as that may be to achieve, it's the only way to ensure that the policy reflects everybody's input and is by far the best means of gaining enterprisewide compliance.

The key to an effective approach is to make all parties accountable for policies within their respective businesses and to provide them with the help of a policy facilitation function (not a "czar") that serves its peers rather than attempting to control them. **CIO**

N. Dean Meyer writes Beneath the Buzz on CIO.com, where he critiques popular IT management concepts. He is the founder of NDMA, a business strategy consultancy. Contact him at dean@ndma.com. To comment on this article, go to the online version at www.cio.com/article/150801.



Super-Slick
Third-Party
Sales Guy

Hassles

Third-Party
Schmooze
Lunch

Windows Mobile
Based Palm Treo
Smart Devices

Being direct

It's a Palm thing.



Say goodbye to third-party mail servers, hassles, and costs. Say hello to simplicity and control. Palm® Treo™ 750 smart device from AT&T with Windows Mobile® 6. Pick one up today for only \$199*. Learn more, or buy now at www.palm.com/productivity or 1-866-799-PALM.

*After \$150 mail-in rebate with 2-year agreement on unlimited data plan of \$39.99/month or higher and eligible voice plan.

Every innovation, every business process improvement, comes with an IT complexity tax that must be paid by CIOs in time, money and sweat. Here are strategies to mitigate the increasing complexity of IT as it enables new business. BY GALEN GRUMAN

CURES_{for} COMPLEXITY

It's called Moore's Flaw, the flip side of the famous axiom that has driven the furious pace of IT innovation for several decades.

Moore's Law (in one of its many formulations) states that computing capability increases 1 percent per week. Moore's Flaw posits that keeping up with this flood tide of innovation quickly becomes too difficult (and too costly) for anyone to manage.

"IT complexity acts as a significant tax on IT value," says Bob Zukis, a partner at PricewaterhouseCoopers. It's those organizations that "have managed complexity out of their environments that are reaping the value from their IT spends."

Even more important, businesses that successfully address complexity can be more agile because their systems don't get in the way of business process change.

"When you reduce complexity, you increase your ability to implement new solutions," says André Mendes, CIO of the Special Olympics.

"Complexity leads to brittleness and high costs," notes Frank Modruson, CIO of Accenture. "But if you get your technology cleaner, you can serve the business more easily."



Reader ROI

- :: What contributes to IT complexity
- :: Why driving to simplicity is complicated
- :: How consumer technology should be managed



Special Olympics CIO **André Mendes**:
 “When you reduce complexity, you increase
 your ability to implement new solutions.”

Today, all CIOs are standing in the path of a fire hose spewing complexity. And many are getting soaked.

THE COMPLEXITY ADD

Within IT, factors that increase complexity include outsourcing management, the adoption of Web and consumer technologies, support for mobile workforces, developing and managing technology architectures and governance for those workforces, and ensuring security in a distributed environment.

Outside of IT's direct control, complexity is increased by the requirements of compliance, the need to support global business, and the speed and depth of access to information demanded by your customers and your partners.

CIOs can—with difficulty—handle these challenges individually, one at a

time. But in the real world CIOs face many, if not all, of these challenges, all at once, over and over. “That’s why you need a strategy to keep complexity out of the environment, not just have knee-jerk responses,” Modruson says.

The challenge of complexity is exacerbated by the fact that many organizations have technology systems that have been built up over time or acquired through acquisitions or complicated by many waves of vendor consolidation. For these companies, moving forward requires an almost archaeological effort to unearth, understand and work with all these layers of sedimentary technology. This digging causes the delays that frustrate business executives and CIOs alike whenever change or progress is needed, says Mark McDonald, group vice president for Gartner executive programs.

Worse, fundamental changes in business are making the complexity challenges harder than ever. “I don’t see an end to complexity. Technology continues to change, and business demand for services continues to increase,” says Wal-Mart CIO Rollin Ford. This means that even CIOs who are good at managing complexity can never, ever rest. And those who are not good at it are at risk of allowing their organizations to fall behind.

Some CIOs have figured out ways to escape the complexity trap. They reduce complexity where possible; they live with what remains; they still invest in new technologies that can lead to business success. But there’s no silver bullet. You can’t buy simplicity. And you can’t hand off the problem to a service provider. No one lives in the complexity space; no one

THE VALUE *in* IT

A CIO dialogue on Innovation and Technology

CIO Publisher
Gary Beach recently
discussed innovation
and disruptive
technologies with
four IT executives:

Ted Maulucci
CIO, Tridel Corp.

Phil Alberta
vice president for business
and technology management,
Tiffany & Co.

Susan Cramm
founder and president,
Valuedance

Anuj Kumar
regional vice president
of sales, Red Hat

*Following is an excerpt from their discussion.
The full webcast is available at [www.cio.com/
webcasts/sponsored/redhat/innovation](http://www.cio.com/webcasts/sponsored/redhat/innovation).*

GARY BEACH: Ted, what role does IT play in creating top-line growth in your organization?

TED MAULUCCI: It allows us to change our business model and enable new ways to sell. One of our primary businesses is selling condominiums. Because we've automated and integrated all of our systems to such a high level, you can put an entire sales office in a laptop. So, right now we're simultaneously selling Toronto product in Shanghai, Korea, Calgary and Vancouver. The other thing that it's done is it's driven a lot of costs out.

BEACH: Phil, what about at Tiffany?

PHIL ALBERTA: In the retail space, we are able to manage customers, manage merchandise, and extend things like our web platform globally to sell product as well as move product. And it has created a lot of opportunities to grow revenues primarily, but also add to some efficiencies.

BEACH: Susan, what role do you see IT playing in driving top-line growth?

SUSAN CRAMM: Primarily in the realm of removing the inhibitors to grow. So, when we think about supply chain and insuring that the process is in scale, that's a real focus area. Another one has to do with ensuring that customer information is available throughout the organization—from the front-line salesforce up through the organization.

BEACH: Ted, do you believe that IT execs now are more business people than technology executives?

MAULUCCI: Definitely. I would say from my own perspective, I spend 80 percent of my time on a business side rather than on a technical side. The value comes when you look at the technology and figure out how to make it different.

BEACH: Phil, what are you doing at Tiffany?

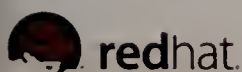
ALBERTA: I agree wholeheartedly with Ted. We've gotten better at ingesting new technology. It's, "How do we become a strategic advantage to the business as opposed to a service?" I think 80 percent's probably the right amount of time we spend on business questions, business process, business problems.

BEACH: Susan, would you agree with Phil and Ted in terms of 80 percent?

CRAMM: Oh, I'm going to be a contrarian here. Until we are able to really get a focus on measuring value, I think we're still going to be an expense to be minimized. Virtually anybody I work with is always fighting for dollars. And it's not a question of, "Gee, how much can we give you because we know you're such a good return?" It's, "Why do you need it?" And that, I think, is fundamentally our challenge from a leadership standpoint.

BEACH: Anuj, what's your point of view?

KUMAR: I would kind of balance it out. I would say I would agree with Susan for probably



THE NATION'S MOST ELITE CIOs AND IT EXECUTIVES ATTEND CIO CONFERENCES. THE **THOUGHT LEADERSHIP SERIES** IS A SNAPSHOT OF A ROUNDTABLE WHERE THEY SHARE IDEAS, SUCCESSES AND STRATEGIES.

"I spend 80 percent of my time on a business side rather than on a technical side."

—TED MAULUCCI

almost half the customer base that we come across. But I would say the traditional businesses are still stuck in the camp of, "It's still a cost. How do we take it out? How do we get more competitive the traditional way?"

BEACH: Phil, what are some of the interesting technologies that you're looking at?

ALBERTA: On the technology side, it is around mobility. Things like virtualization, I would agree are not something I talk to anyone about but my own team.

BEACH: What about Open Source? What are you doing there?

ALBERTA: We do very little of our own in-house development anymore. So, most of the packages we buy are very retail-oriented. We will ingest Open Source as we can and as necessary. We look forward to it, actually.

BEACH: Susan, what are you seeing [from] customers that excite them in terms of disruptive technologies?

CRAMM: Service-oriented architectures and web services—the very large financial services firms are way ahead on that. But the second-tier kind of



From left, Ted Maulucci, Phil Alberta, Susan Cramm, Anuj Kumar and Gary Beach.

organizations would like to have more of a chance to get their hands on it. They're wanting to do more things in the Open Source area; they're wanting to do more things on virtualization.

BEACH: Anuj, from your observation of your customers, what percent of their IT infrastructure is leveraged on Open Source now, and is it truly an IT priority?

KUMAR: Almost 80 percent of trades on Wall Street are done on Open Source. If you've ever

bought anything online, 90 percent of it is done Open Source. So if you look behind the scenes, at how much business it's affected, it's huge. Now, is it a priority? It's not a question of, "if I should do it," or even "when I should do it." It's really "Where and how I would go do it," because it's now become a viable business model. People are seeing the business benefits of it.

BEACH: In terms of virtualization at Red Hat, where does it rank among [your CIO's] priorities?

KUMAR: It's pretty high on the list. What's happened, I think, in the last five years is [virtualization has] been commoditized. Intel is putting it on its chip. AMD is putting it on its chip, which actually gets it to the masses. So you'll find uses for virtualization that you never knew existed; it's there for you to use it when you want it, [in ways that were] not there when you bought it.

BEACH: Phil, Ted was saying that in six months, 80 percent of his infrastructure is going to be virtualized. Looking into the future, what percent do you think it'll be at Tiffany?

ALBERTA: We're striving for 80 right now, but the philosophy is virtualize first and then tell me why it can't be virtualized. We're very comfortable virtualizing single servers. Our Exchange environment is virtualized one server on one host.

BEACH: What percentage are you running in Open Source at Tiffany and is it on your priority list?

ALBERTA: I think Open Source for us, in a very different way than virtualization, isn't a topic unto itself. It's part of the solution. It's part of, "What are we doing next? What's the best way to do that?" I think the thing we've done is made ourselves open and ready to accept Open Source.

MAULUCCI: From my perspective, it's just gaining comfort with it. I know I'm moving with it. I've already made decisions toward it. It's just feeling more comfortable [with it]. We will go there. It's going to happen. ■



More than 500 of your peers in the CIO Executive Council are collaborating on issues essential to the IT community — and beyond.

Since the CIO Executive Council's inception in 2004, members have participated in hundreds of peer-to-peer calls and interactive group meetings — enabling them to connect to one another at any time, on any topic. Change management, software licensing practices, expanding the role of the CIO, applying the right Web 2.0 strategy, getting today's youth interested in IT — these are just some of the upcoming issues our members will tackle.

Join the discussion. To view more upcoming CIO Executive Council meetings or to recommend discussions most relevant to you and your enterprise, visit www.cioexecutivecouncil.com/community.

CIO Executive Council

The CIO Executive Council was created by readers of *CIO* magazine and leaders within the community of CIOs to leverage the individual and collective strengths of its members, to serve as unbiased and trusted advisors to each other and to advance the CIO profession and its role in driving shareholder results for their respective organizations. In just three short years the CIO Executive Council has grown to over 500 CIOs worldwide, representing executive leadership in organizations with approximately \$2.5 trillion (USD) in annual revenues.

For information on membership, please visit www.cioexecutivecouncil.com.

Founded by



**Business
Technology
Leadership**



I.T. GUY, STEP

FROM THE



AWAY

PBX.

Some things are better left untouched.

Before you start that big transition to VoIP, hold the phone. It may not be the grand reconstruction project they've been talking about. Simply stated, it isn't about ripping and replacing or big, upfront costs. That's because it isn't about hardware.

It's actually about software.

Now you can keep your hardware—your PBX, your gateways, even your phones. Move to VoIP with software. Software that integrates with Active Directory®, Microsoft® Office, Microsoft Exchange Server, and your PBX.

Maximize your current PBX investment and make it part of your new software-based VoIP solution from Microsoft. It's big change, without changing it all. Learn more at microsoft.com/voip

VOIP AS YOU ARE.

Your potential. Our passion.®

Microsoft®

has a packaged solution to the complexity problem. The truth is that you need a strategy that reduces complexity, and you need the tactical ability to implement that strategy up and down your organization.

Although there's no single formula that will work for everyone, IT leaders and consultants have identified four broad principles for reducing complexity:

First, make process central to your IT organization's approach to technology.

Second, you need superior governance of both the technology infrastructure and the business-IT relationship.

Third, everything you do must have simplicity as the default expectation.

Fourth, your efforts must be ongoing. Complexity is not something you get rid of once and for all. It's a battle you wage every day.

FIRST CURE: PROCESS-DRIVEN ARCHITECTURE

An architectural approach is essential to managing complexity, says Motorola CIO Patty Morrison, and you need one mapped to business objectives.

"You very, very much need to have an end-state architecture in place—a description of where you're headed," she says. That architecture cannot simply be for the IT infrastructure—the network, the data flow to and from the ERP systems, the security checkpoints, the application monitors, and so on. IT-oriented architectures tend not to take into account the flexibility needed to support changing business processes. Rather, Morrison says, the CIO's architecture has to be driven first by key business processes.

Imagine what a failure a plane's design would be if its creators didn't take into account the fact that different customers may have different uses for the planes—some desiring multiple classes, some looking for different cargo-passenger ratios, some serving long-haul destinations and others short-haul. Ignoring those factors would result in a plane that flew but couldn't adapt to its customers' business needs. The seats might be movable but not the lighting—a seemingly minor detail, but one that might prevent

airlines from configuring the seating to differentiate between first class and coach. In the same way, a business with a technology architecture that isn't created in service of current and anticipated business needs will be limited in what it can do. Change will require expensive retrofitting of technology to handle what the architecture hasn't anticipated.

COMPLEXITY FACTOR

"The hardest thing for IT to do is to get business units to agree on a common way to do something."

—MOTOROLA CIO PATTY MORRISON

At Motorola, Morrison ensures that her architecture accommodates and anticipates business goals by using business process management (BPM) principles and an enterprise reference architecture to define a common language for business and IT. The enterprise reference architecture is a broad set of blueprints that shows the business, operations and systems layers.

This approach also ensures that business-IT conversations don't devolve into throwing requirements over the wall, an approach that usually adds complexity in two ways. One is that IT fulfills the business's requirements outside the overall architecture, often leading to multiple ways of doing the same thing. These processes must then be reconciled, which frequently requires custom interfaces for other systems that no one (certainly not the business) realized would be affected. The other complexity add comes from IT's interpretation of those over-the-wall requirements. It usually misses something, leading to multiple rounds of rework and patches that make the final system ever more complex. By contrast, the architecture-based approach at Motorola "creates a rich, interactive, high-quality conversation around real solutions, not abstracted requirements," says Morrison.

But, she acknowledges, it's not easy to achieve this state. It requires that business units think beyond their immediate needs and work with other units toward a common approach.

"The hardest thing for IT to do is to get business units to agree on a common way to do something," says Morrison. That takes maturity in working across

silos. Without it, business units end up clamoring for their own unique variants of, say, customer information. And that adds complexity.

With the architectural groundwork established, Motorola uses modeling tools first to design the desired business processes and then to simulate and test various technological approaches to delivering them. For example, Motorola used this approach to reduce part qualification cycle time—a process of evaluating which suppliers' parts meet the quality, cost and other requirements for planned Motorola products—from 28 weeks to seven weeks in 2006 while improving visibility and controls over the process.

Having an enterprise reference architecture doesn't mean an organization has an immutable plan. Because both business and technologies change, you can't always have a multiyear plan for a specific result, says Mack Murrell, vice president of IS at Dow Chemical. For example, you shouldn't develop a service technician scheduling system that depends on a specific wireless network, or is limited to servicing only the kinds of products you currently offer. Instead, "you want a set of options within your target," he says.

For example, you would ensure the application is network-agnostic and supports both always-on connections and



Increased efficiencies
and decreased risks across
ABN AMRO's 4500 branches
in 53 countries. That's
certainty

A business with millions of customers globally, called for an innovative and holistic approach to increase its client satisfaction, with decreased time to market and reduced costs world over. To achieve this, ABN AMRO needed a comprehensive IT solution that would increase efficiencies and minimize risks in its daily operations. An IT solution not just for the immediate time frame but for the future as well. As one of the world's fastest growing technology and business solutions providers, Tata Consultancy Services (TCS) helped ABN AMRO make a seamless transition to a new system by leveraging a methodology developed by TCS' Innovation Labs. Ensuring that ABN AMRO was a step ahead in reassuring its customers of a higher and better level of service. And of course, enabling ABN AMRO to experience certainty.

TATA CONSULTANCY SERVICES

Experience certainty.

IT Services ■ Business Solutions ■ Outsourcing

To learn how your business can experience certainty, visit www.tcs.com

intermittent connections. You would not hard-code product specifications but would instead rely on a metadata approach that supports a range of possible product characteristics, and could support a variety of information types (say, video and PDF) even if they're not needed today.

That requires an architecture that anticipates and enables change. To do this, Dow deconstructs its enterprise architecture into discrete subsets (such as purchasing, plant maintenance and pricing) and layers (such as business system, technical and products). Dow uses structured enterprise architecture methods and service-oriented architecture approaches to manage the subsets and the changing relationships among them within the overall architecture.

Dow has a group of IT and business staff whose job is to track these subsets and make sure they conform to the overall architecture—or adapt the architecture if that's what's needed.

SECOND CURE: GOOD GOVERNANCE

Ironically, as Accenture CIO Modruson notes, "Complex things tend to be easier to design and deploy." Many enterprises justify Rube Goldberg-type systems by saying they need them now and promising themselves that they'll clean up the technology later. But "later never happens," Modruson says dolefully. Strong central governance can prevent that "let the future worry about it" mentality. "Organizations that have effective IT governance by and large have lower levels of IT complexity," notes Gartner's McDonald.

That's why CIOs and their business partners must have strong governance "about what really impacts our customer, with business a key part of that decision structure," says Michael Vincent, CIO of global financial services provider ING.

Having that fundamental business understanding—and a common view of it in both business and technology leadership—provides the CIO with the ability to make decisions that prevent unnecessary complexity and also enables him to more accurately assess the costs and ben-

efits of any desired technology. It enables him, Vincent says, to figure in the impact of complexity not just on deployment but also on maintenance and integration, which consumes about 70 percent of IT's budget. It also allows him to gauge how a technology will affect future changes to

both the business and the IT infrastructure. "This customer focus helps show which requests are too complex for the value provided," says Vincent.

Of course, CIOs are always under pressure to respond quickly to business's urgent priorities, and an IT leader will

CONSUMER TECH: The New Complexity Add

As if things weren't complicated enough...

The nutty pace of technology change is old news, but now a whole new stream of change is aimed at the CIO: the consumer technologies that increasingly are being used by both employees and customers.

"In a few years, 100 percent of people in the most attractive demographic—18- to 35-year-olds—will be digital natives, and their expectations are being set in that environment," says Mark McDonald, group VP for executive programs at Gartner. That means MySpace, Facebook, iPods, iPhones, Google Maps, instant messaging, blogs. And the list goes on.

The problem with consumer tech is that it's rarely designed with enterprise systems in mind, so to fit it into the enterprise architecture adds complexity. An iPhone, for example, doesn't have disk encryption, creating a security hole. "For consumer-oriented technologies, one of the biggest issues is data security since these technologies are so easily lost or stolen," says John Petrey, CIO of TD Banknorth. "There's added complexity to support the various technologies used to connect and sync with corporate systems."

The key to embracing consumer tech in the enterprise is to change the terms of engagement, McDonald says. After all, what the CIO wants is a consistent set of processes and technologies to manage; whether they come in the form of an iPhone, BlackBerry or Treo shouldn't matter.

McDonald cites the wireless LAN market as a historic example. Once there was a reliable standard (802.11b), enterprises could manage the technology, and wireless devices became commonplace.

McDonald admits that consumer tech vendors, as they jockey for lock-in advantage, typically don't adhere to such standards—and their customers couldn't care less. But he sees a tipping point emerging where such standards will be developed either by vendors seeking to broaden their sales or by decisions CIOs make that push the vendors to respond in kind.

CIOs need to assume that many consumer technologies will become mainstream in the enterprise, just as the Web has.

"I like to think of it as an opportunity to reduce, not add, complexity," says Motorola CIO Patty Morrison. "Enterprises that leverage consumer technologies allow their people to better manage the convergence of personal and professional demands. These are the enterprises that will win."

"It really changes the existing paradigms of end-user services within the enterprise," she says—challenges such as integration and security notwithstanding.

—G.G.

Bridge the gaps
in your **DNS** infrastructure
with **NeuStar**.

DNS – DHCP – TRAFFIC MANAGEMENT

When you've already spent millions on a state-of-the-art network to support your critical business processes, and you're contemplating investing even more to realize the enormous economic benefits of IP-based communications, you need the very best DNS infrastructure.

NeuStar's suite of managed DNS services delivers carrier-class performance, comprehensive security, massive scalability, 24/7 monitoring, and expert support from developers and engineers – enabling organizations to focus on serving customers and growing their businesses. What's more, you'll retain complete administrative control over your DNS environment via our advanced management tools.

Let NeuStar help your organization scale efficiently and transition smoothly to the communications industry of tomorrow. Learn more at www.neustarultraservices.com or call toll-free (888) 367-4812.



Motorola CIO **Patty Morrison**: "You need to have an end-state architecture in place—a description of where you're headed."

inevitably need to make some complexity trade-offs for truly critical demands. But you can't let that pressure subvert the principles of good governance.

"If we find ourselves living in a 'get it done' mode for extended periods, the red flag goes up," says Wal-Mart's Ford. By having a seat at the executive committee table, Ford can make sure the red flag is not ignored.

This joint IT-business approach to decision making should also extend to decisions on what technology products and services are purchased—even for technologies that the CIO is not directly responsible for managing, says John Petrey, CIO of financial services provider TD Banknorth.

"In some cases, a business unit might go out and contract for services such as Salesforce.com. That starts out as a silo

with no messaging or integration with existing apps.

But later, that messaging or integration becomes desirable and then the complexity factor for IT rises," Petrey says. What seemed like an isolated technology ends up needing to connect to core systems, requiring retrofit work.

The CIO's involvement in these outside-of-IT decisions can help ensure conformity to standards and architectures, says Petrey, reducing current or future complexity issues that could affect the business units, not just IT. "You want to look for the best fit to business needs and minimum complexity through the governance process," he says.

When evaluating the complexity implications of any business or IT effort, CIOs will need to accept, in some cases, more complexity than is ideal because of the business benefit, says Vincent. For exam-

ple, ING is buying various transaction systems in its fast-growing Asian operations to handle a surge in demand. And although ING is re-architecting some of its global systems for more common processes and technology, the Asia business can't grow if it has to mark time while that effort is completed. Vincent knows he'll need to rework the Asia operations eventually, but that will cost ING less than the revenues it might miss by waiting.

Understanding this trade-off up front ensures that the price of the complexity-add is apparent early on, preparing the ground for later investments that will be needed to clean things up.

In ING's approach, complexity factors are fundamental to the joint business-IT decision-making process, not only alerting business to the price to be paid for its requests, but also helping IT avoid over-complicating what it delivers.

ICE CREAM PARADISE



When Delivery and Expertise
are all that count, count on us



TOGETHER. FREE YOUR ENERGIES

► FINANCIAL SERVICES

With **KANBAY**® Capgemini creates a Financial Services Powerhouse.

Thanks to our recent integration of Kanbay, Capgemini Financial Services now brings you world-class delivery with deep domain expertise integrated from end-to-end. Our Banking, Insurance and Capital Markets clients enjoy world-class consulting, technology and outsourcing services delivered locally or through our global delivery centers, spanning three continents, anywhere, anytime. Our deep domain expertise is embedded from design, throughout your business processes and driven right down to the keyboard from the team of financial services experts executing and delivering your project. And with a worldwide network of nearly 15,000 professionals and enhanced service offerings, we're a financial services powerhouse collaborating with leading clients to create leaders in Financial Services.

Visit us at www.capgemini.com/count-on-us

 **Capgemini**
CONSULTING. TECHNOLOGY. OUTSOURCING

THIRD CURE: DEFAULT TO SIMPLICITY

"It's harder to do simple, but it's better to do simple," says Accenture's Modruson, because the more difficult task of simplifying the design up front results in easier implementation down the road.

In 2005, Motorola's Morrison says, she had 60 customer data models. That made application and business process integration extremely difficult. Then the business requested an accounts receivable project, and Morrison used it as a driver to simplify those 60 data models. "We established a global common customer master data model; we didn't make it optional. All projects now use it as a blueprint," she says. "The result is we now work on one customer master; we modify and maintain one, as opposed to a mountain of them. It's just a massive reduction in work and overhead, and an improvement in agility."

It's easy to end up with unnecessary complexity due to technological and business-process diversity, notes Fifth Third Bancorp CIO Raymond Dury. "Each additional technology wasn't a tipping point; it was just one more thing. But at some point you realize you've reached a tipping point where simplifying is a benefit."

"Mature companies need disciplined teams and change controls to minimize the risk [of increasing complexity]. That's why they've failed in the past; they don't look at the lifecycle," says Wal-Mart's Ford. "All of a sudden, they hit the wall."

But driving to simplicity can be tricky. It's hard to get resources to revamp older systems or to pay for the initial architectural efforts. And the work can take years. "It can't take too long; otherwise people will seek exceptions. So you need to get resources fast," Morrison warns. Some of those resources need to come from your internal savings, some in the form of business investments. Internal savings typically come from two areas: efficiencies and vendor management.

CIOs can achieve efficiencies—and reduce IT complexity along with costs—through a variety of complementary tactics, including disciplined data man-

agement, employing change-control techniques to their application development and integration efforts, using Six Sigma techniques for post-deployment defect management, increasing automation, deploying cost-savings technologies such as virtualization, outsourcing some technologies, "ruthlessly" standardizing (using Accenture's Modruson's adverb), consolidating duplicate technologies and retiring older systems. "When you do things rationally, you can actually cut the budget," says Special Olympics' Mendes, as he discovered when, as CIO of PBS a few years ago, he cut the interconnection asked from the federal government from \$177 million to \$120 million while, he says, introducing new technology that substantially improved services.

and simplification—technology consolidation and retirement—can be tricky, notes Peter Ruggerello, VP of applications development of pharmaceutical distributor AmerisourceBergen, because there are often undocumented dependencies between what you want to keep and what you want to get rid of. A classic example is that "a customer order entry system is being retired and you find that a job to receive EDI [electronic data interchange] orders was using the same subsystem to validate data received before it was passed on to a new process in the back-end order-entry systems," he says.

That's no reason to shy away from getting rid of technologies that are no longer needed, but it does require mapping dependencies—and keeping the map

COMPLEXITY FACTOR

"You can take 30 inefficient data centers and create three inefficient data centers from them. What takes the most time [to do it right] is figuring out what your target is. Only with that in place can you optimize the operations."

—ING CIO MICHAEL VINCENT

The key area to focus on internally is your data architecture, says Motorola's Morrison. "If you focus on master data—customer, pricing, bills of materials and so on—and get those very defined, the number of applications you have will become less of a complexity problem," she maintains. That's because much of the integration effort across applications involves managing all the point-to-point data transformations when applications interact. Having a consistent data architecture eliminates much of that effort by allowing one to use repeatable processes at the integration layer. That results in both immediate and long-term savings that can help the CIO make other efficiency and simplification investments.

Two approaches to achieving savings

updated—so you can remove the older technologies more efficiently when the time comes, Ruggerello suggests.

Accenture spent quite a bit of effort when in 2004 it replaced 450 financial applications with a single SAP ERP instance, and migrated 277 of its 280 business applications to a single platform. More recently, the consultancy undertook the same consolidation effort with its recruiting systems, replacing 46 with one. "Today, we have a theory of one: We have just one of anything," Modruson says.

"Even though it was hard to get there, what we have today is a lot better," says Modruson. The cost of IT as a percentage of net revenue has been cut in half, he notes, with a "significant" portion coming from reduced complexity.



Get the World's First Open Storage System with Legendary ZFS

The Sun Fire™ X4500 Storage Server (aka “Thumper”) delivers twice the performance, half the size and one-third the price of the competition. With common storage pools, provable data integrity and near-zero administration, ZFS overturns everything you thought you knew about file systems. And with four-core X64 performance, the highest storage density and the power of Solaris™, the Sun Fire X4500 Server blows away everything else in price, performance, and capacity.

For a free 60-day trial, go to sun.com/openstorage.



Reducing the Complexity Tax

Enterprises that simplified two aspects of their financial systems—having high standardization, such as a unified chart of accounts, and common applications, such as a single ERP system—spent **23 percent** less on their finance efforts. Enterprises that reduced complexity in additional areas averaged an extra **21 percent** in savings.

SOURCE: The Hackett Group



Paradoxically, achieving savings through consolidation isn't achieved merely by consolidating. "You can take 30 inefficient data centers and create three inefficient data centers from them," warns ING's Vincent. "What takes the most time [to do it right] is figuring out what your target is. Only with that in place can you optimize the operations," he says. It's the Goldilocks principle of determining what's just right, being just as simple as you need to be.

The easily appreciated benefits of consolidation include reducing license costs (by reducing the number of licenses you need) and personnel (by having fewer data center managers). But these savings are finite. Once you achieve them, you're done. You can accomplish more by, for example, moving to different types of servers or adopting new approaches such as virtualization. But these require thinking first about what the future needs of your organization are likely to be and how changes to your processes might anticipate them, or at least not get in the way, Vincent says.

Savings through vendor management typically come as a result of consolidation, Fifth Third's Dury notes. The basic equation, he says, is simple: "If you'll share these efficiencies with us, you'll get more of our business." Savings—and simplifications—can also come from educating your vendors about your architecture, says ING's Vincent, "so they don't bring incompatible products to the table." Another way to use your vendors to reduce complexity is to challenge each one to identify *two* existing products that you can eliminate by buying

their one, says Gartner's McDonald.

Such internal improvements cannot be undertaken just for IT's sake. The real goal remains serving business's changing needs by having a responsive, flexible technology base.

FOURTH CURE: CONTINUOUS IMPROVEMENT REQUIRED

It can be tempting to try to buy your way out of complexity by outsourcing as much of your IT as you can get away with or by adopting big-ticket platforms from any one of a hundred vendors that will swear they can solve all your problems.

"We went ERP in 2000. It simplified our landscape by getting rid of legacy systems. We cleared out the old and brought in the new," recalls Anthony Bosco, CIO of engineering and facilities management firm Day & Zimmermann. Bosco believes that having a fairly closed technology system or platform encourages simplicity because it discourages the addition of single-point technologies.

However, enterprises have multiple needs, which means they will need multiple systems. And when adding technologies is necessary, you get added complexity, Bosco concedes, especially where they duplicate some of each oth-

er's processes. "It worked for a while," he adds, but the complexity started creeping back as the business's new needs required new technologies not anticipated by the ERP developers. "The ERP systems of today are the legacy of tomorrow," Bosco sums up. He's handling this conundrum by tying each platform to a specific set of business needs, such as ERP for financial management and e-commerce for online transactions. He enforces a disciplined set of links among them to prevent complexity caused by use of duplicate processes.

A seductively easy fix for complexity is to hand over your technology to someone else. That's a bad idea, says Bernard "Bud" Mathaisel, CIO of software outsourcing provider Achievo. When a company is stable, says Mathaisel, it's more efficient and costs less to manage well-designed key infrastructure, such as data centers, in-house. Outsourcing makes sense when a company is in transition, such as during a merger, or in a period of high growth, and you don't have the human or management resources available. "That's worth the premium cost," he says.

Outsourcing, unfortunately, may not reduce complexity so much as shift it, notes John Baschab, president of management services at consultancy Technisource: "Outsourcing turns a technical challenge into a management one."

And outsourcing per se won't fix overly complex subsystems. Sounding an ironic note, Ramesh Dorairaj, head of application management services at Mindtree Consulting, says that "offshoring merely arbitrages inefficiency at a lower cost."

Some organizations follow a cyclical approach to dealing with complexity. Every five years or so, they embark on a simplification effort to reset the technology base to something that can be used as a platform for future growth. In theory, this can work, especially for industries that have boom-and-bust cycles; the bust times are when you can make the investments for the next boom period. But this approach has three flaws, says Daryl Plummer, chief of research for emerging trends and process management at Gartner. One is that enterprises rarely

ERP and You

ERP was supposed to reduce IT COM-
PLEXITY. How'd that work out? Not too
well. For more on ERP, go to our tutorial at
www.cio.com/article/40323.

CIO.COM

Solaris™ is open source and free. It runs on IBM, HP (and Sun, too.)

With Solaris™, you can do a lot more. Add reliability and data integrity to your databases. Confidently deploy a secure, scalable Web infrastructure. Plus, you can run Solaris on over 880 x86 Platforms and still benefit from Sun's 24/7 world-class support.

Learn more, download or get your free DVD today at sun.com/getsolaris.
And join the Solaris open source project at opensolaris.org.



invest when times are tight. Two is that it requires a large shift in skills and priorities that's hard for people to handle. Three is that waiting lets the problem fester, leading to workarounds by impatient users that will contribute to complexity down the road.

"Occasionally, the window for big-project change does exist—maybe 5 percent of the time," says Mathaisel. "Take advan-

Petrey, you need to reduce complexity in the legacy technology you're *not* retiring. "If you don't," he says ominously, "the consequences to your business will come at a point not of your choosing.

"It's not a sexy thing to do," he continues, "and the business doesn't see the value in it, but if you let it go, you'll end up with complexity *and* fragility." Not a good combination.

COMPLEXITY FACTOR

"A business unit might go out and contract for services such as Salesforce.com. That starts out as a silo with no messaging or integration with existing applications. But later, as needs evolve, messaging or integration becomes desirable and the complexity factor rises."

—TD BANKNORTH CIO JOHN PETREY

tage of it when you can. But 95 percent of the time you're really talking about incremental change. You do what you can today and deal with the rest on a later cycle."

There's also bigger risk for large-scale retrofits embarked on during down times, warns Wal-Mart's Ford. It's precisely during the tough times that the business comes to IT for help. So counting on simplifying your technology environment then is probably not realistic.

The best approach is to make the work of simplification ongoing, says Dow's Murrell. "Look in every area to see what's redundant," he recommends. That doesn't necessarily mean doing anything to simplify the technology cans you've opened. "You may make a decision to leave the worms in there due to the cost or the delay to value," Murrell says. But you should document what could have been simplified and why you didn't make the effort, so the next time that particular can is opened it'll be easier to determine if that's the right time to get rid of the worms.

Ultimately, says TD Banknorth's

Staging simplification efforts over time is a critical strategy for success, argues ING's Vincent: "Take bite-sized, digestible chunks; otherwise, you'll choke. Replace a brick at a time, not a whole building."

THE HIGHEST COMPLEXITY FACTOR: YOUR JOB

It may seem as if the complexity burden has become too great to bear. But CIOs have been there before, says Accenture's Modruson, and not only have they survived, they've thrived: "In the 1980s, everyone stitched together networks from multiple technologies. Things have gotten better as technology complexities have collapsed."

For example, CIOs used to worry about what network technology to choose; now it's all IP-based and no longer something on which CIOs need to focus. Similarly, server technologies have collapsed into a few well-known quantities that CIOs can rely on. "These are standard platforms I don't have to worry about," says Special Olympics' Mendes. "I can target

business value instead."

"A decade ago, we moved to new technologies quickly because the old ones weren't so good. But now we can be more measured because what is now the old stuff does work," Modruson says.

What's changed is that the complexity has migrated. As parts of the IT environment became standardized, such as networks, other issues replaced it, such as securing porous enterprise boundaries and managing massive data sets in a world where budgeting for downtime for maintenance and backup is simply not acceptable to the business. And emerging process-management approaches such as service-oriented architecture that promise to reduce the complexity of application integration and development introduce complexities elsewhere, such as in change management and testing, notes TD Banknorth's Petrey.

A more fundamental shift has been away from a focus on infrastructure technologies to technologies that deliver business processes. The IT infrastructure continues to pose its own complexity challenges, but it's now just table stakes—part of the CIO job—and why business needs CIOs who are both business- and process-oriented.

CIOs must play at several levels simultaneously, addressing both business and IT needs, keeping the systems running while ensuring that their technology strategy supports business operations, promotes innovation and provides competitive advantage in a changing environment, says Michael Farber, a vice president at consultancy Booz Allen Hamilton. "It's a 3-D chess board," he notes.

At most companies, "the CIO ends up at the tail end of things," stuck with complexities caused by others, says Dave Zink, client executive at consultancy EquaTerra and former CIO of CBS. "But when companies have elevated the CIO to the right level, they are less likely to have complexity."

Assuming they have a CIO who can play a mean game of 3-D chess. **CIO**

Galen Gruman can be reached at ggruman@zangogroup.com. To comment on this article, go to www.cio.com/author/41292.



How do you move ahead of the competition?



Gain the advantage with project management credentials and career path tools.

Project teams are the drivers of business success. Project Management Institute helps you attract, train and retain the most talented professionals with our globally respected credential and career path programs. A forward-thinking approach that will help increase your productivity, efficiency and profitability.

Advance your business with project management. Visit us at PMI.org/advantage.



Making project management indispensable for business results.®

CAPM® Certified Associate in Project Management ■ PMP® Project Management Professional ■ PgMP™ Program Management Professional ■ Career Framework

LAW

Now that e-mails and electronic documents have attained the same evidentiary status as paper, CIOs need to standardize processes for e-discovery

BY JUDI HASSON

Reader ROI

- :: The importance of creating a retention and deletion policy
- :: Technologies that can support e-discovery processes
- :: Why IT and legal must be joined at the hip

No one wants to be sued. But in today's litigious world, it's rare that any company will escape a lawsuit in the course of its business life. And it's becoming the CIO's job to make sure that when that unhappy time comes, IT is ready for the flood of directives to turn over all relevant electronic documents. That's where the headaches start for any IT department that does not have a good e-mail retention and retrieval system.

The need for better electronic record keeping evolved a year ago when the federal gov-

ernment overhauled its rules of civil procedure and made electronic documents an official part of the discovery process during a lawsuit. The rules for what is called "e-discovery," which took effect Dec. 1, 2006, make production of electronic documents as important as turning over hard copies of materials in any legal case. Companies typically have 30 days to answer any e-discovery request (though the court may grant extensions). If they fail to respond promptly, they face thousands of dollars in fines and even risk forfeiting the case.

ORDER



Management
& Technology
Consultants

The Risk of Lost Opportunity

It's every bit as important as the other risks that threaten a company's success — security, compliance, credit, technology, operational, financial, geopolitical, market.

BearingPoint understands this. And knows how to help companies seize opportunity rather than run from the risks surrounding it.

That's why The Forrester Wave: Risk Consulting Services 2Q 2007 named us a leader in risk consulting:

"BearingPoint showed an ability and willingness to move beyond technology to focus on more of the organizational, role, and process issues for risk management."

Find out how we can help you seize opportunity. Download the white paper "Where Risk, Compliance and Security Intersect" at www.bearingpoint.com/risk

**We are BearingPoint.
Management and Technology Consultants.**

BearingPoint.com/Results | 1.866.BRNGPNT

In this new world that marries the legal system with technology, the CIO has to add corporate archivist to his job description. Consequently, IT departments must work with their legal departments to come up with a plan that saves critical e-mails and makes them easily retrievable. Unfortunately, there are few rules for setting up an electronic records management system, a paucity of best practices for training employees to catalog their e-mail and no guidelines for creating procedures that employees will consistently follow to ensure prompt and comprehensive production of subpoenaed electronic documents. And so many CIOs are still scrambling to figure out a way to organize and keep track of their corporate e-mail.

But people are working on the problem. According to legal experts and IT leaders who are tackling the issues, the key to compliance with e-discovery rules is to establish enterprisewide document management and retention practices for e-mail and other types of digital documents, and then deploy the appropriate software to support them. "You can achieve a lot of

protection, reduce your risk and reduce the cost of discovery by adopting reasonable, repeatable and scalable processes and tools," says John Rosenthal, a partner and cochair of the e-discovery committee at Howrey, a Washington, D.C., law firm.

Here are five strategies for getting ready for the inevitable:

The Five Rules of E-Compliance

1. BUILD A TEAM

"The problem with e-discovery is the first time it hits your radar screen is when the general counsel calls and tells you what the court wants," says Paul Zazzera, a

consultant and former CIO at Time Inc. In order not to get caught with your pants down, IT and legal should work to develop processes, policies and tools for saving e-mail that everyone in the company understands and follows. "A CIO and the legal department should be fused at the hip," Zazzera says.

And don't leave business leaders out of the discussion. "Too many CIOs think of litigation as something that belongs to the legal department," says Leslie Wharton, head of the e-discovery team at the Arnold and Porter law firm. "Litigation is something that belongs to the company as a whole, and whether you're a plaintiff or defendant, the company must be able to

"Too many CIOs think of litigation as something that belongs to the legal department. Litigation is something that belongs to the company as a whole."

—LESLIE WHARTON, E-DISCOVERY HEAD, ARNOLD AND PORTER

Your E-DISCOVERY Tool Kit

A burgeoning supply of products and services gives CIOs a wide range of options

John Rosenthal, a partner and cochair of the e-discovery committee at Howrey, a Washington, D.C., law firm, says it may cost between \$1 million and \$2.5 million for a company to prepare for e-discovery, depending on the tools it needs. Paul Zazzera, a consultant and former CIO at Time Inc., says a large company with 10,000 employees might spend \$500,000 for "entry level" e-discovery tools and training that include basic e-mail retention and retrieval capabilities. "When you reach

beyond e-mail, the number can quickly grow beyond \$1 million," he adds.

A small firm might spend its money more wisely implementing better document management processes instead of technology. Because small companies (they hope) don't face as many lawsuits as larger companies, e-discovery experts say it's more important for smaller enterprises to ensure that they save records in a consistent and reliable way.

The bottom line, according to e-discovery experts,

is that waiting until the last minute to deploy technology—when the e-discovery order comes—can be more costly than planning ahead. "We're all feeling our way," Zazzera says. "Discovery is expensive."

Here's a short list of available tools and services:

Attenex provides tools for law firms to standardize e-discovery procedures.

Zantaz, a subsidiary of Autonomy, supports discovery and review processes without requiring a reviewer to code or tag documents.

Digital Mountain pro-

vides tools for collecting, processing and analyzing electronic data for law firms.

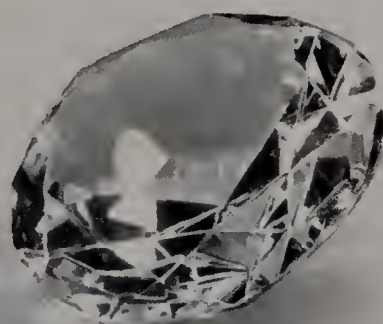
EnCase is a suite of products by Guidance Software to search and retrieve electronic data. It can find data across a network from a centralized location.

First Advantage provides litigation support services including e-discovery and data recovery services.

Stratify products include the Stratify Legal Discovery Service, which provides a search tool that can handle 300 documents an hour.

—J.H.

There are **Bigger** IT Outsourcing Companies



But not **Better**

For 20 years, clients have outsourced their IT to CompuCom and benefited from cost reductions

up to 50 percent, enhanced quality and superior value. These remarkable accomplishments

are made possible by CompuCom's unique **Integrated Infrastructure Management™ (IIM)**

solution that combines IT life cycle management, effective service delivery, and a world-class

help desk to eliminate the complexities of infrastructure management.

The result: Tier-one service quality at a tier-two price.

Learn more at compucom.com.



CompuCom

IT Outsourcing Services • Application Services • Software Services • Hardware Services

meet document preservation and production obligations.”

Such preparation makes you “discovery ready” rather than needing to react to litigation or regulatory investigations as they come up, according to Mark Reichenbach, the former director of discovery and regulatory response at Merrill Lynch, now vice president for client and industry development with vendor MetaLincs. Some companies have even begun to appoint cross-functional e-discovery teams to address the issue, adds Zazzera, run either by IT or the general counsel’s office.

2. MEET THE E-SHREDDER

Not everything needs to be, or should be, retained. For example, if the statute of limitations has passed in a tax case or environmental dispute, delete the associated records. Many companies keep data from legacy systems that are obsolete, so there’s no business reason—and probably no legal reason—to keep them around, observes Julie Brickell, associate general counsel at Altria Corporate Services, which handles tobacco litigation for affiliate Philip Morris.

Defining what you should preserve is a murky issue, however, and depends on what kind of business you’re in. Most important, says Zazzera, is to have a consistent policy for what is and what’s not permissible to delete. Having an established policy that’s broadly communicated—and following it—indicates to the courts that you’re taking the issue seriously and provides a measure of protection against accusations of carelessness or malicious intent. A policy is a set of rules. Have the same rules for e-mail as for other electronic documents.

“You really have to think through a policy about everything,” Zazzera says. “What records you’re keeping and how you’re keeping them.”

Most companies will say that all electronic and paper documents generated by employees on company property can become part of the e-discovery record. But there are gray areas. For example, if a person sends a personal e-mail using a

“If executives imagine their e-mails blown up on a highway billboard, that’s exactly how it looks at trial. Never put anything in an e-mail you wouldn’t want your mother to read.”

—PATRICK OOT, VERIZON DIRECTOR OF E-DISCOVERY

company computer, should that be turned over in e-discovery? And if a person sends e-mail from his own computer about company business, can it be protected?

3. KNOW WHERE THE E-MAILS ARE

Have a map showing the location of every e-mail you keep and how to retrieve it. Make sure the IT department and business units know where to find the material.

Howrey centralized all its e-mail servers in one data center in Virginia, including e-mail from its office in Taiwan, according to CIO Brian Conlon. Data from its offices in Europe is consolidated in London. Storing all e-mail in just a few places makes it easier to comply quickly with discovery orders. The law firm also expects to apply technology to help it catalog its paper files. In the next year, Conlon plans to deploy radio frequency identification (RFID) to find paper documents, which could make it much easier to search for hard copies.

In addition, make e-discovery compliance part of your due diligence if your company is planning an acquisition. Look at the company’s e-mail storage plan to make sure you will be able to produce all electronic data without a glitch if there is a lawsuit down the line.

4. TRAIN YOUR PEOPLE

Make sure everyone in the company knows which materials to keep and which to discard. “It’s reasonable for a corporation to rely on employees to save docu-

ments that might be in litigation,” asserts Howrey’s Rosenthal.

If you have a personal e-mail policy in your office (and you should), make sure employees know what kind of messages should never be sent from an office computer. It may be OK to talk about your dog or what’s for dinner, but a disparaging remark about a person or another company may come back to haunt you.

All e-mail, both personal and corporate, creates a potential litigation risk, says Patrick Oot, Verizon’s director of electronic discovery. “Employees should realize the lack of privacy in e-mail. If executives imagine their e-mails blown up on a highway billboard, that’s exactly how it looks at trial,” Oot says. He offers a rule: “Never put anything in an e-mail you wouldn’t want your mother to read.”

5. TECHNOLOGY IS YOUR FRIEND

Get used to the idea that supporting e-discovery is a necessary expense. You’ll pay a premium if you wait until a lawsuit hits before you prepare to comply.

There are e-discovery tools designed to meet the needs of any company, from startups to large multinationals. How much you spend has a lot to do with how much discoverable information you have and the number of concurrent litigations you usually face. You also have the choice of outsourcing instead of deploying the technology yourself. But a basic system, according to Zazzera, includes search and retrieval software as well as archiving capabilities.

None of this is glamorous or fun.

But it is necessary. **cio**

What About IM?

Will the courts require IM records? PDA communications? Check out the **NEW RULES** at www.cio.com/article/27958.

cio.com

Judi Hasson is a freelance technology writer. To comment on this story, go to www.cio.com/article/149850.

We have one thing to say to everyone who believes a SINGLE platform can't change EVERYTHING about data management.

SAY HELLO TO

SIMPANATM

software suite

Singular Information Management.TM Infinite Possibilities.

What can a single, ingeniously efficient, infinitely scalable data management product change about the way information is protected, archived, managed, and accessed? In a word, *everything*. Say goodbye to shoehorning disparate products into inefficient, expensive patchwork "solutions." Simpana software is a *single* product with application modules for Data Protection, Archive, Replication, Resource Management and Search—all built from the ground up, on a single code base and platform. The Result? Singular efficiency, flexibility, and scalability other products can only dream about. To learn why Simpana software will change the way you think about data management, and about the groundbreaking new features and search capability in Simpana 7.0 software, visit www.commvault.com today.

► DATA PROTECTION

► ARCHIVE

► REPLICATION

► RESOURCE MANAGEMENT

► SEARCH

©1999-2007 CommVault Systems, Inc. All rights reserved. CommVault, the "CV" logo, CommVault Systems, Solving Forward, SIM, Singular Information Management, Simpana, CommVault Galaxy, and QiNetix are trademarks or registered trademarks of CommVault Systems, Inc. All other third party brands, products, service names, trademarks, or registered service marks are the property of and used to identify the products or services of their respective owners. All specifications are subject to change without notice.



commvault
solving forward



Making Workflow Work and Flow for You

Workflow isn't rocket science, but it isn't magic either. It can improve the way your organization runs only if you apply its principles correctly.

BY RICK COOK

BOTTOM LINE: ADDING WORK-flow to a process saves money. It increases customer satisfaction. It helps business get results more quickly and largely eliminates the problem of steps getting skipped and factors being missed in the old project shuffle.

In other words, what's not to like?

"With workflow, the process is really in focus," says Wilhelm Ederyd, a technical project manager at Bonver, a Scandinavian-based distributor of home entertainment products. The true goal of workflow, Ederyd says, is "hiding unnecessary complexity from the users." (For more on the issue of complexity, see "Cures for Complexity," Page 46.)

But what exactly is workflow?

Workflow in Action

One can think of workflow as systems analysis that focuses on people and machines and their interaction rather than focusing just on numbers. Ederyd, for example, working then as a consultant for Bonver, had to build support for people and businesses ordering broadband services from Bonver via the Web, e-mail and snail mail. "This can be a rather complex process, with the systems and personnel needing to interact efficiently in order to make the process slim and pleasant to the customer," Ederyd explains.

In this case, Ederyd designed the process for ordering and installing the broadband connection for the customer. Typically—given a whole raft of business requirements generated by Bonver's executives—that means working out how the process would flow from the customer's initial contact with Bonver to the actual installation: Who does what? What does the IT system do? When should decisions be made and who should make them?

Ederyd presents a classic workflow case: a complex, multistep process where computers and people have to interact as smoothly and efficiently as possible. It's also a process that's exposed to the customer, and therefore delays or mistakes could damage Bonver's

Reader ROI

- :: What level of workflow you need
- :: How workflow differs from business process management
- :: Best practices for implementing workflow



FINANCE & IT

TWO SUPERSTARS DISCOVER SUPERCOLOR

TOSHIBA MFPs help opposites find a brightly colored common ground. IT people love the award-winning, easy-to-use color because they get fewer troubleshooting calls about the copiers. While the numbers guys dig the controls that set permissions for color printing and copying to track and manage costs. So much for clashing personalities.

Visit us at copiers.toshiba.com to download our white paper on color.

TOSHIBA
Leading Innovation >>>

relationship with its customers.

For Defense Health, an Australian insurance company, customer relationships are particularly important. "We needed a system that would let us answer a customer's question up front rather than saying, 'We'll call you back,'" says Andrew Guerin, COO of Defense Health. For Guerin, that meant having processes in place to access information as quickly as possible. Using workflow tools from OpenText, the company designed processes that combined IT systems, documents and people and got a handle on queries much more quickly, which makes for a satisfied customer.

Rightsizing Workflow

Workflow tools are highly stratified. At the top of the range are the workflow modules built into ERP applications such as SAP and standalone products like FlowWare from Plexus. Products in this class typically include process modeling, business rules engines and other features to help reengineer processes involving thousands of workers and thousands—or tens of thousands—of steps.

At the entry end of the spectrum, applying workflow to the simplest processes requires no special tools at all. "I have pointed out to some users that what they really wanted is Microsoft Office and a little routing slip between users," says Johannes Scholtes, president of ZyLAB Technologies, a work-

Workflow? BPM? I'm So Confused!

The difference between workflow and business process management

WHEN TRYING TO TWIG APART workflow and BPM, one is apt to fall into the Wonderland of vendor speak. Vendors that advertise themselves

as being in the BPM space are aiming to sell their products to large companies undertaking big, complex projects. Those that call their products "workflow" are selling to smaller



or mid-market companies.

In truth, workflow is the basis of BPM as well as business reengineering. In other words, BPM is simply workflow with a lot of bells and whistles.

But those bells and whistles are important enough to make a big difference for someone trying to help a business run more efficiently. A typical BPM application has elaborate modeling tools, analytical functions and other features to handle complex projects that workflow is not generally thought to possess.

That, however, may be changing. Workflow trade groups, such as the Workflow Management Coalition, are busy developing tools for large projects, such as an XML-based process definition language. Perhaps the best way to look at the BPM-workflow dichotomy is that the terms overlap so much that it's virtually impossible to draw any kind of a hard line between them—not that vendors don't try strenuously to do so. —R.C.

flow vendor and consultant. "Of course, you can sell these people a \$25,000 application to automate this, but they don't really need it."

Ultimately, what you need depends on the size and complexity of the processes to which you're trying to apply workflow management.

Features aren't the only differences between workflow tools. The products aimed at simpler processes usually

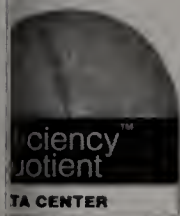
focus on ease of use. The designers' assumption is that the product's ultimate users will not be experts.

For example, Quask, a workflow software vendor, built its application around the concept of an intelligent form. The user develops the workflow by filling in the form, including the business rules. "Everyone understands what a form is," says Quask CEO Freddy May. "People can relate to



"Once you're comfortable with workflow in your organization, it will allow you to implement new business models much faster than your competition."

—WILHELM EDERYD, BONVER TECHNICAL PROJECT MANAGER

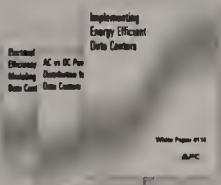


How efficient
is your
enterprise system?

Find out exactly where you stand! Go online today and find
out what your **FREE** Efficiency Quotient™ rating is.

US...

Choose and receive
any of these 3
APC White Papers
within the next 90 days for FREE!



Key Code

<http://www.apc.com/promo/y883x>

289.APCC x9318 • FAX: 401.788.2797

APC
Legendary Reliability®

Go online and get your **FREE** efficiency rating today!

Or fill out this card for the following White Papers:

- ☐ White Paper #114 "Implementing Energy Efficient Data Centers"
- ☐ White Paper #63 "AC vs DC Power Distribution for Data Centers"
- ☐ White Paper #113 "Electrical Efficiency Modeling for Data Centers"

☐ **YES!** Please send me my FREE white papers. ☐ **NO,** I'm not interested at this time, but please add me to your mailing list.

Name: _____ Title: _____

Company: _____

Address: _____ Address 2: _____

City/Town: _____ State: _____ Zip: _____ Country: _____

Phone: _____ Fax: _____ e-mail: _____

☐ **Yes!** Send me more information via e-mail and sign me up for APC PowerNews' e-mail newsletter.

Key Code: y883x

What type of availability solution do you need?

- ☐ UPS: 0-16KVA (Single-phase) ☐ UPS: 10-80kVA (3-phase AC) ☐ UPS: 80+ kVA (3-phase AC) ☐ DC Power
- ☐ Network Enclosures and Racks ☐ Precision Air Conditioning ☐ Monitoring and Management
- ☐ Cables/Wires ☐ Mobile Protection ☐ Surge Protection ☐ UPS Upgrade ☐ Don't know

Purchase timeframe? ☐ <1 Month ☐ 1-3 Months ☐ 3-12 Months ☐ 1 Yr. Plus

You are (check 1): ☐ Home/Home Office ☐ Business (<1000 employees) ☐ Large Corp. (>1000 employees)
☐ Gov't, Education, Public Org. ☐ APC Sellers & Partners



**BUSINESS REPLY MAIL**

FIRST-CLASS MAIL PERMIT NO. 36 WEST KINGSTON RI

POSTAGE WILL BE PAID BY ADDRESSEE



ATTENTION CRC: y883x
132 FAIRGROUNDS ROAD
PO BOX 278
WEST KINGSTON RI 02892-9920

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

**How to Contact APC**

Call: 1.888.289.APCC x9318

Fax: 401.788.2797

Visit: <http://www.apc.com/pro>
enter keycode y883x

APC
Legendary Reliability®



FREE Servers, FREE Applications, FREE Floor space, FREE Man-hours, FREE Power, FREE Storage...

Introducing the revolutionary enterprise architecture that finally pays you back.

Legacy systems work fine for brute-force cooling the entire room, but skyrocketing energy costs make them fiscally irresponsible and their fundamentally oversized design makes them incapable of meeting today's high-density challenges. Even worse, power and cooling waste may actually prevent you from purchasing much-needed new IT equipment. Simple problem, simple solution. Cut your power and cooling costs and use the savings to buy the IT equipment you need.

According to Gartner Research, 50% of all data centers built before 2002 will be obsolete by 2008 because of insufficient power and cooling capabilities. Power and/or cooling issues are now the single largest problem facing data center managers.

There's only so much power and money to go around

Your service panel limits the amount of power available. Your budget limits the amount of money. You have to stretch every bit of both as far as you can. What you need is the APC Efficient Enterprise™.

The APC solution offers modular scalability so that you pay only for what you use; capacity management so that you know where to put your next server; and dedicated in-row and heat-containment systems that improve cooling and thermal predictability. An Efficient Enterprise earns you money through the pre-planned elimination of waste. For example, simply by switching from room- to row-oriented cooling, you will save, on average, 35% of your electrical costs.

Our system reimburses you

Whether you're building a new data center or analyzing the efficiency of existing systems, your first step is knowing where you stand. Take the online Enterprise Efficiency Audit to see how you can reap the benefits of a smart, integrated, efficient system: more power, more control, more profits.



The Efficient Enterprise™ makes cooling predictable and reduces operational expenses by...

- ① **Employing close-coupled cooling.** Our innovative InRow™ architecture allows more efficient, targeted cooling by shortening the distance between heat generation and heat removal.
- ② **Containing the heat.** Our Hot Aisle Containment System reduces hot spots by preventing hot exhaust air from mixing with cool air in the room.
- ③ **Managing capacity.** Intelligent, integrated capacity management software gives you real-time data on your power and cooling demands.
- ④ **Utilizing right-sized components.** Right-sized "pay as you grow" components mean no more wasting power with oversized legacy systems.

APC
Legendary Reliability®



How efficient is your enterprise system? See exactly where you stand
— take our online Enterprise Efficiency Audit today!

Visit www.apc.com/promo Key Code y883x • Call 888.289.APCC x9318 • Fax 401.788.2797

The division between big and complex and simple and small is somewhat misleading. Almost any process can be broken down into a series of smaller processes, so it's possible to handle even a large, complex process by chopping it into chunks and doing it one chunk at a time.

it instantly."

Products designed for larger projects are much less concerned with ease of use. Vendors expect that the products will be used by consultants or in-house experts.

The division between big and complex and small and simple is important, but it's also somewhat misleading. As almost any process can be broken down into a series of smaller processes, it's possible to handle even a large, complex process by chopping it into chunks and doing it one chunk at a time.

The limitations of the simpler workflow tools become evident when they're

asked to manage interprocess dependencies and handle complex database integration and tasks that are critical to larger, more complex processes. The complexity cuts both ways. A big project requires the tools that come with a big, expensive product. But if you don't need that big, expensive product, the complexity that comes along with it can slow you down.

The Workflow Advantage

Unlike ERP, workflow tends to use a bottom-up approach to reorganizing the enterprise.

It works one process at a time.

In a typical organization, workflow implementations are atomic. While a process may be connected to other processes in an elaborate chain or network, each process is, in effect, a separate project. This is in contrast to ERP, which deals with the organization as a whole—and that "whole" needs to be carefully modeled before changes are contemplated.

The disadvantage of the workflow approach is that it takes a while to fully reengineer an organization. ERP tries to swallow the elephant in one gulp. Applying

When Workflow Neither Works Nor Flows

Trouble spots to watch out for:

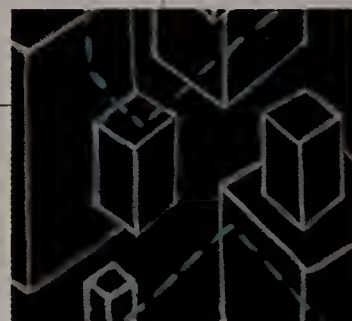
No plan. "It's a mistake to buy a product without thinking through who's going to carry out the implementation," says Freddy May, CEO of workflow software vendor Quask. That could be your IT staff, a consultancy or the vendor. The point is: Decide on your plan.

No process. By definition, workflow applies to a process. But a process is not a collection of random

business activities—it's a stream of activities connected in a specific order. If what you're trying to improve with workflow isn't an actual process, you'll end up with a dysfunctional mess.

Also, be sure the process is amenable to workflow. "You should not try to automate activities that are too flexible," says Wilhelm Ederyd, a technical project manager at Bonver, a distributor of home entertainment products. "If you do, the solution will be useless to the end users. The workflow is too rigid and will not allow them to perform their jobs."

No humility. "Don't try to implement the perfect process from the start or you'll get bogged down with the complexity, and your users and management might lose interest in the project," says Ederyd. Experts say to shoot for 85 percent to 90 per-



cent of the business requirements.

No value. It's easy to waste money applying workflow to

processes that return minimal or no value for being improved. It's vital to pick your targets carefully—especially in the beginning.

No buy-in. Implementing workflow means combining systems and people. If your people don't understand the process or its benefits, why should they cooperate?

No scope. While your ultimate goal may be to improve every process in your organization, starting small and building block by block decreases risk and improves your chance of success.

"If you start with 20 or 30 processes, you're missing out on the opportunity to learn on the job," says May.

—R.C.

IT'S NOT ABOUT BUYING MORE SOFTWARE.

IT'S ABOUT GETTING MORE VALUE.

Growing your business doesn't have to mean spending more money on software. Shift resources from managing and maintaining to innovating and driving business strategies. See how Red Hat is redefining IT value for organizations every day.

www.redhat.com/explore/transform

**RED HAT®
ENTERPRISE LINUX® 5**



redhat

© 2007 Red Hat, Inc. All Rights Reserved. "Red Hat," Red Hat Enterprise Linux, the Red Hat "Shadowman" logo, and the products listed are the trademarks or registered trademarks of Red Hat, Inc. in the US and other countries. Linux is a registered trademark of Linus Torvalds. All other trademarks referenced herein are the property of their respective owners.

workflow to an entire organization is like trying to eat the elephant one bite (or process) at a time.

When the elephant gets to a certain size, the more advanced business process management (BPM) tools come into play. (See "Workflow? BPM? I'm So Confused," Page 72.)

The advantage of the workflow approach is that IT is not as locked in during implementation. Changes to a workflow process can be made quickly. "Once the system is in place, it's not the be-all and end-all," says Craig Cameron of Web and Flo, a workflow consultant and maker of workflow software. Change in business is inevitable. That's one of the problems with ERP; it's so difficult to adapt.

Another advantage of a well-designed workflow process is that it can serve as a template that can be applied quickly to similar processes. "Once you're comfortable with workflow in your organization, it will allow you to implement new business models much faster than your competitors," says Bonver's Ederyd. "The cost and complexity of doing so is now manageable." (For signs that your implementation is going wrong, see "When Workflow Neither Works Nor Flows," Page 74.)

Cameron cites the example of a customer, an Australian bank, that wanted to apply workflow to the process that some of its divisions used to order hardware. "They needed to go through all these checks and make sure that the right people had signed off on it," Cameron says. "So we implemented a system to do that."

Which was fine until the bank's other



divisions heard about the new process. "We only created a system for three or so of their teams, and suddenly another 15 wanted to be involved," Cameron says. "Instead of having to do a complete restart, we're

extracting what we've already done and cutting and pasting it into a new system. Then we hit a button to create the end user interface."

"A complex solution often indicates you are trying to support goals other than those defined, and this will add risk to the project."

—WILHELM EDERYD,
BONVER TECHNICAL
PROJECT MANAGER

Where and How Do You Start?

There are several elements common to all successful workflow implementations:

Start simple. "A workflow implementation should be as simple and robust as possible," says Ederyd. "A complex solution often indicates you are trying to support goals other than those defined, and this will add risk to the project."

Talk to the users. "Active user involvement is a key to success," says Ederyd. "You really need to sit down with the users and watch and question how they perform their tasks in order to

identify the scope for the solutions."

ZyLAB Technologies' Scholtes recommends getting use cases from users. "The only way we've been successful is to talk to the end users and try to get some use cases on paper," he says.

Define the process. "The biggest problem is knowing what you want," says Scholtes. "People often work differently from how they *think* they work. With workflow, you've got to really pin people down."

Draw pictures. In the world of workflow, these are known as "visual process models." They represent the process and the roles of the various affected groups in a simple, easy-to-understand format.

"Diagrams are critical," says Quask's May, even if the process is trivial. "What a diagram does is basically prove you've thought about what you're doing. The temptation is always to say, 'I know how this works.' More often than not, you don't, because you haven't taken the time to analyze the process."

Pay attention to exceptions. The nature of processes is that people judge them more by what goes wrong rather than by what goes right. "You need to make sure that the inevitable exceptions are handled smoothly," says Ederyd. "A lot of customer dissatisfaction is based on how clumsily exceptions are handled."

Pilot and test. Make sure the process works before you rely on it. Some organizations run the old and new methods in parallel until they are satisfied with the workflow implementation.

Workflow isn't rocket science, but it isn't magic either. While workflow can make major improvements in the way an organization runs, it can only do so if the principles are applied correctly. Making workflow work and flow for you comes down to understanding the processes that make your business work. **CIO**

Rick Cook is a freelance technology writer. To comment on this article, go to www.cio.com/article/148309.

Workflow and BPM

Puzzled by how to integrate workflow with **BUSINESS PROCESS MANAGEMENT**? Go to www.cio.com/article/151002 to see what the Aberdeen Group has found out.

CIO.com



Does it seem your servers are taking over?
Let CDW help you regain control.



Hard drives
sold separately

HP ProLiant DL580 G4 Rack-mount Server

- Dual-Core Intel® Xeon® Processors 7140 M (3.40GHz)
- Memory: 4GB std., 64GB max. (PC2-3200)
- Data storage: none ship std.; up to eight hot-pluggable SAS (576GB)
- 32MB Level 3 Cache (16MB per processor)
- Embedded Dual NC373i Multifunction Gigabit network adapters
- Dual hot-pluggable redundant power supply



Call CDW for pricing CDW 1038995



VMware® Infrastructure 3 Enterprise for Two Processors

- Increases hardware utilization
- Decreases hardware and software capital costs
- Improves server to server administrator ratio



Call CDW for pricing CDW 994419



Hard drives
sold separately

HP StorageWorks® 70 Modular Smart Array

- Low-cost, flexible tiered storage system with up to 14.4TB capacity supporting both SAS and SATA
- Scalable design allows you to purchase additional capacity as storage needs grow



Call CDW for pricing CDW 1126579

We're there with the server solutions you need.

Is managing your growing number of servers and your growing storage needs getting to be too much? At CDW, we're there with everything you need to optimize your servers. From server consolidation to storage management, networking to virtualization, CDW can answer your questions and get you the solutions you need. So call today. It's time you ran your network, not the other way around.

CDW.com | 800.399.4CDW



The Right Technology. Right Away.

Beyond the Spreadsheet

THE CIO EXECUTIVE COUNCIL

A business sensibility is not just what your IT staff learns in an introductory MBA course. It's not about how to read a spreadsheet or build a budget. What it's really about is thinking and acting like a businessperson. For years, members of the CIO Executive Council have been concerned that their staffs lack real business understanding in such areas as their company's market, its external customers and other business drivers. In response, Council members have created a formal learning community—Leadership Advancement Pathways—for their direct reports. Veteran CIOs act as faculty for the yearlong curriculum. Pathways and other formal programs are one tool in the business education portfolio (see "All About Training," below). But staff must also cultivate an on-the-job business sensibility. To that end, Council members are immersing staff in the business environment.



CATHIE KOZIK

You have been invited to a meeting...

It's one thing for IT staff to meet with users and business peers for a project review. It's quite another to have staff interact with senior business executives on a regular basis. Cathie Kozik, corporate vice president of supply chain IT at Motorola, invites her information visibility analyst to

participate in senior business leadership's quarter-close meetings so he can see firsthand how the operational performance data points he produces are used to make decisions. "It's a real *aha!* moment," says Kozik. The analyst

takes what's he's learned back to his desk to brainstorm new ways to slice the data and contribute new types of information that will have business value. Kozik's team also regularly sits down with members of the business to do a "look back" and "look ahead" on how information *is* being used and how it *could* be used, says Kozik.

Stewart Gibson, senior vice president and CIO at USI Holdings, asks his senior staff not

just to participate in IT steering-committee meetings with senior business leaders, but to actually run them. To be effective, leaders really have to know the business and speak the language, says Gibson.

IT-business executive interaction works well even on the small scale. Brian Tennant, CIO at Bethesda Lutheran Homes and Services, has eight individuals on his IT team. "Our department is too small to worry about creating formal opportunities to increase business sensibility," says Tennant. Instead, he routinely asks staff to join him for meetings with members of the Bethesda senior management team.

Continued on Page 80

How to Build a Business Sensibility

CIOs complement on-the-job opportunities with programs from a wide variety of sources.

» **CIO Bruce Metz** at Thomas Jefferson University created a customer service program that teaches how to understand customers and manage customer interactions. "We used a professional trainer to develop content based on direct feedback from the business units,"

says Metz. The trainer facilitated the two-month series of workshops for all members of the IT department. (Download the curriculum outline at www.cioexecutivecouncil.com/public/content.html.)

» **CIO and SVP Stewart Gibson** at insurance broker USI Holdings encourages his business analysts to get nontechnical certifications in property and casualty insurance and insurance licenses. He builds funding for both into his annual budget.

» **With CIO Scott Wesson's** sponsorship, Vice President of IT Strategy **Michael Baldwin** participates in the CIO Executive Council's Leadership Advancement Pathways program, where he can speak with CIOs and his peers from other industries about advanced business competencies. "Every time I talk to someone outside of AIMCO, I increase my business acumen and am able to pinpoint more variables affecting our business," says Baldwin. —C.M.

WHEN INFORMATION AVAILABILITY MATTERS



SunGard. Setting new standards for Information Availability by delivering a range of solutions that meet your specific availability objectives. Flexible enterprise wide solutions from IT management to AdvancedRecoverySM. 2,500 experts. Three decades of experience. 100% successful recovery track record.

To see how SunGard can help improve your IT availability stop by www.availability.sungard.com or call 800-871-5857 today.

SUNGARD[®] Keeping People
Availability Services and Information
Connected.[®]

680 East Swedesford Road, Wayne PA 19087
800-468-7483 | www.availability.sungard.com

TO SEE THE TOP SEVEN ROADBLOCKS COMPANIES FACE IN ACHIEVING INFORMATION AVAILABILITY
AND FIND OUT HOW TO AVOID THEM VISIT WWW.AVAILABILITY.SUNGARD.COM/IA

[EXPERIENCE BASE]

A Structure That Means Business

Motorola's new organizational structure for IT staff divides them into three specific teams: "Plan," composed of business analysts who interface with the rest of the business; "Build," the application developers; and "Run," the maintenance staff.

Cathie Kozik, corporate vice president of supply chain IT, was one of the first adopters of this model. She made strategic hiring decisions and moved IT staff with advanced business skills onto the right team. She also hired businesspeople directly into IT, specifically onto the Plan team, which helped the rest of the team get up to speed on the business and intricacies of the functional areas. "For the Run team, I have people who sit with the business so that they have the same sense of urgency about serving the customer and getting product out the door as the businesspeople do," says Kozik.

Although the Build team is positioned separately from the rest of the business, the Plan and Run teams are colocated with the business, inspiring a shared vocabulary. "[IT is] thinking every day about volume, conversion costs, conversion cycles and the kinds of things that matter to the business" in the supply chain area, says Kozik.

One unintended consequence of connecting Kozik's staff so tightly to their business partners is that project demand rate has increased significantly. "We now have people directly connected to the business to hear and foster ideas and thoughts. Previously, the business would have lots of ideas but did not have time to bring them to us since it meant arranging special meetings," says Kozik. She tries to keep the number of projects under control by aligning investment planning with Motorola's overall strategy.

Beyond the Spreadsheet

Continued from Page 78

The benefits of these types of meetings are cumulative as Tennant's team gets more exposure to (and new perspectives on) the business's goals. "After participating in meetings with the CFO, my programmer will go back to his desk and rethink the way we deliver financial data. He thinks about what the CFO is trying to accomplish and the intended audience," says Tennant.



STEWART GIBSON

Business 101 tour now departing

At AIMCO, CIO Scott Wesson always tells his new hires, "You can never forget what the A in AIMCO stands for." It stands for "apartments"; that's what the \$1.5 billion real estate management company is all about. Wesson routinely takes new hires out to a Denver-area apartment building to get a sense of the business. He used to take staff on a tour of the facility and call it a day; now he takes the field trip a step further. He invites a business leader to run the tour and talk about what success looks like from his or her perspective. "It's become more of a dialog around business challenges, which gets the IT staff focused immediately on business and customer needs," says Wesson.

Besides learning what the business is about, CIOs want their staff to understand the impact of system success and failure. "I want IT to feel like they are there to serve a greater [business] purpose and not just to connect network cords to specific jacks," says Tennant. "If they can take a problem and think in business terms, then that's a very different thought pattern." For example, instead of seeing a "system going down," they should see its impact on our ability to get people their medication, says Tennant. After such service disruptions, Tennant's team visits with the business function most affected by the outage for a formal debriefing. The discussion focuses on the business impact of the disruption rather than the technical problems. "Next, my staff participates in a brainstorming session with the business about different ways we can mitigate risk—whether it's having hard copies of medication forms or communicating with our third-party provider to provide medication information," says Tennant.

Gibson sees the change in mind-set in his everyday conversations with his staff and on paper in annual self-appraisals and project retrospectives. "My team is now assessing their activities and success and framing it in business terms, not in technical terms," says Gibson. When I see this shift in communication, I know that everything we're doing to foster business sensibility is working." **CIO**

Carrie Mathews, Group Manager, Member Services, can be reached at cmathews@cxo.com. To comment on this article, go to www.cio.com/author/101060.

Your CEO will want Telepresence. Get in front of it... Now!



The worldwide leader in video and voice is the real presence in telepresence.

- 100% standards-based to fit into your environment
 - Simple to manage and maintain
- Low footprint, lowest bandwidth consumption
 - Flexible room configuration from 4 seats to 28 seats to suit your application
- Patented EyeConnect™ technology and true stereo HD audio for a more natural, fully immersive meeting experience
- RealPresence™ Experience with up to 48:9 aspect ratio screen with Cinematic View



www.polycom.com/rpx/cio



SALES AND SERVICES

CIO SALES OFFICES

President and CEO

Michael Friedenber
508 935-4310

Publisher

Bob Melk • 415 975-2685

Publisher Emeritus

Gary J. Beach
508 935-4202

EAST COAST

Regional Sales Manager

Ellie St. Louis
201 634-2332

Account Executive

Anna Mkrtychyan
201 634-2331

Senior Sales Associate

Norma Tamburrino
201 634-2329
Fax • 201 634-9513

NEW ENGLAND/CENTRAL

Regional Sales Manager

Brett Ferry • 508 935-4684

Sales Operations Manager

Dawn Cora
508 935-4092
Fax • 508 879-6063

SOUTHERN CALIFORNIA

Regional Sales Manager

Kevin Ebmeyer • 415 975-2684

WEST COAST

Regional Sales Managers

Kevin Ebmeyer
415 975-2684

Michelle Stutsman
415 975-2686

Regional Account Executive

Lawrence Fu
415 975-2683

CUSTOM SOLUTIONS GROUP

Vice President

Matt Avery
508 935-4796

National Director, Sales

Adam Dennison
508 935-4087

Editorial Director

Jim Malone

Associate Editor

Anne Taylor

Senior Project Operations

Manager

Amy Greenleaf

Project Managers

Karen Capland,
Amy Freeman

ONLINE SALES

Vice President, Online Sales

Brian Glynn • 508 935-4586

Online Regional

Sales Manager

Richard Hartman
508 935-4487

Online Regional Sales Manager, West Coast

Erika Karr
415 978-3329

Online Regional Sales Manager, Central

Sarah Gaskin
415 975-2681

Manager, Online Account Services

Danielle Tetreault
508 988-7969

Online Account Services Specialist

Valerie Sumner
508 988-7877

Online Advertising Specialist

Irina Gabechiia
508 935-4414

Online Sales Associate

Erin Sullivan
415 975-2687

Online Account Services Coordinator

Hayley Nickerson
508 988-7819

LIST SERVICES

Contact Paul Capone of IDG
List Services at 508 370-0865
or pcapone@idglist.com.

For further sales information:

[www3.cio.com/marketing/
contact/sales_contact.html](http://www3.cio.com/marketing/contact/sales_contact.html)

CIO is published in the U.S. as well as in:

Australia, CIO Australia
www.idg.com.au

Canada, CIO Canada
cio.itworldcanada.com

China, CEO & CIO China
www.ceocio.com.cn

France, CIO France
www.idg.fr/cio

Germany, CIO Germany
www.cio.de

India, CIO India
91-80-521-0309/12

Japan, CIO Japan
www.idg.co.jp

The Netherlands,
CIO Netherlands
www.cio.nl

New Zealand,
CIO New Zealand
www.cio.co.nz

Poland, CXO Poland
www.cxo.pl

Singapore, CIO ACEN/
Hong-Kong www.idg.com.sg

South Korea, CIO Korea
www.ciokorea.com

Sweden, CIO Sweden
www.cio.idg.se

CIO CONTACT INFORMATION

Editorial, Advertising and

Business Offices: CXO Media Inc., 492 Old Connecticut Path, P.O. Box 9208, Framingham, MA 01701-9208, 508 872-0080.

CIO (ISSN 0894-9301) is published semimonthly and as a combined issue Dec. 15/Jan. 1 by CXO Media Inc. Periodicals postage paid at Framingham, MA, and at additional mailing offices. Canada Publications Mail Agreement Number 1902075. CANADIAN POSTMASTER: Please return undeliverable copy to P.O. Box 1632, Windsor, ON N9A 7C9.

Reprints & Permissions:

For information about reprints and copyright permissions, please contact The YGS Group, 800-290-5460, ext. 150, cio@theygsgroup.com.

Photocopy Rights: Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by CIO for users through the Copyright Clearance Center, provided that a fee of \$3.50 per copy of the article is paid directly to Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01970. www.copyright.com. Please specify: ISSN 0894-9301. Permission to photocopy does not extend to contributed articles followed by this symbol: ‡.

Subscriptions: CIO is free to qualified information executives. To apply, use our online subscription form at subscribe.cio.com. Subscriptions are also available on a paid basis at a rate of \$95 for the United States and Canada, \$195 International (payable in U.S. funds only) and may be ordered online at subscribe.cio.com/services.html. Or address inquiries to CIO, P.O. Box 489, Northbrook, IL 60065-0489; 866 354-1125. Please allow four to six weeks for a new subscription to begin. The single copy price is \$9 for the United States and Canada, and \$15 International. Prepayment is required, payable in U.S. funds.

Change of Address: Please go to www.ameda.com/custsrv/cio and follow the online instructions.

Postmaster: Send change of address to CIO, P.O. Box 489, Northbrook, IL 60065-9816.

Printed in the U.S.A.

INDEX OF COMPANIES AND ADVERTISERS

Page numbers refer to the first page of the article(s) in which the company has a substantial mention. This index is provided as a service to readers. The publisher does not assume any liability for errors or omissions.

COMPANY INDEX

Accenture 17, 46
Aeromexico Connect 29
AIMCO 80
Altria Group Inc 64
AmerisourceBergen Corp. 46
AMR Research 17, 29
Battalia Winston 17
Beijing Organizing Committee for the Olympic Games of the XXIX Olympiad 17
Bethesda Lutheran Homes and Services Inc. 80
Bonver 70
Booz Allen Hamilton Inc. 46
Boston Stock Exchange Inc. 36
CareerBuilder.com 17
Cognos Inc. 17, 29
CSX Corp. Inc. 36
Day & Zimmermann Group 46
Defense Health 70
Dow Chemical Inc., The 46
DWS Scudder Distributors Inc. 36
EquaTerra Inc. 46
Evans Data Corp. 36
Fifth Third Bank 46
First Data Corp. 36
Forrester Research Inc. 17
Freescale Inc. 29
Gartner Inc. 17, 46
Genpact 17
Giga Group 36
Harris Interactive Inc. 17
Hewlett-Packard Development Company, L.P. 36
IBM Corp. 29
ING Groep N.V. 46
Mace Security International Inc. 17

MedPlus Inc. 85
Merrill Lynch & Co. Inc 64
Michael Baker Corp. 17
Microsoft Inc. 29
Mindtree Consulting Ltd. 46
Motorola Inc. 17, 46, 80
NDMA Inc. 40
Oracle 17, 29
PricewaterhouseCoopers 46
Quask 70
Quest Diagnostics Inc. 85
Sallie Mae Inc. 29
SAP Systems 17, 29
Schneider National Inc. 36
Special Olympics International 46
Sprint Nextel 17
Swarovski AG 17
Symantec Corp. 17
TD Banknorth Inc. 46
Technisource 46
The Hartford Financial Services Group Inc. 17
The Sharper Image 17
Time Inc. 64
Transplace 29
USI Holdings Corp. 80
Verizon 36, 64
Wal-Mart Stores Inc. 46
Web and Flo 70
Zinnov 17
ZyLAB 70

ADVERTISER INDEX

3PAR 7
Accenture 32
American Power Conversion 73
AT&T Wireless 41

BearingPoint Inc. 65
Brocade 13
Canon U.S.A., Inc. 2
Capgemini 57
CDW Corp. 77
Cognos Inc. 14
CommVault 69
CompuCom Systems Inc. 67
CXO Media Inc. 25, 49, 83
Dell Inc. C2
Digital Reality Trust 35
Fujitsu 19
Hewlett-Packard Co. 9
IBM Corp. 84, 86, C3
Interactive Intelligence Inc. 4
InterSystems Corp. 11
(ISC)² C4
Marsh 28
Microsoft Corp. 43, 50
Microsoft and Novell 21
Motorola Inc. 23
NEC Corp. 37
NeuStar Inc. 55
Palm Inc. 44
Polycom Inc. 81
Project Management Institute Inc. 63
Red Hat Inc. 48a, 75
Samsung 16
Sepaton Inc. 39
SunGard Availability Services Inc. 79
Sun Microsystems Inc. 59, 61
Symantec Corp. 24a
Tata Consultancy Services Ltd. 53
TEKsystems 31
Toshiba America Business Solutions Inc. 71
Xerox Corp. 26



Executive Programs

where you need to be

CIO Executive Programs combine cutting-edge education and networking opportunities for busy executives. Our programs attract the best and brightest IT executives and our brand is synonymous with the highest quality and integrity. These face-to-face conferences are regarded as the trusted networking resource for the nation's CIOs because we know and understand the executive IT community better than any other IT resource.

Save the date for the following programs:

CIO Leadership Conference

May 18–20, 2008

Sheraton Boston

Boston, Massachusetts

CIO & CSO Business Continuity Forum

July 15–16, 2008

Marriott New York at the Brooklyn Bridge

New York, New York

CIO 100 Symposium & Awards

August 24–26, 2008

The Broadmoor

Colorado Springs, Colorado

CIO|09 The Year Ahead

November 9–11, 2008

Loews Coronado Bay

Coronado, California

**For more information
and to register visit:**

**www.cio.com/executive-programs
or call 800-366-0246**

some see the awesome potential of business.
others see innovation powered by IT.



There's almost nothing that business isn't capable of accomplishing. Products that make our lives easier. Ideas that change the way we work. Breakthroughs that extend our lives. And who hasn't witnessed the power of IT and its seemingly limitless ability to achieve what, just a few years ago, was thought to be impossible? What happens when these two forces are joined together? To find out, go to **ibm.com/special/cio**

How (and Why) to Understand Your Market

The CIO of Quest Diagnostics continually tests her market savvy in order to develop IT-enabled products and services that customers need

A

s CIO for Quest Diagnostics, the diagnostic testing

company, I not only have to keep information technology operations running, but I also have responsibility to use IT to create competitive advantage and to deliver value-added services

and products for our customers. Developing market knowledge—that is, gaining a better understanding of the healthcare industry and our customers'

needs—isn't a sideline activity. It's part of my role and it's critical to my company's growth.

A broad and deep understanding of your business, market and customers enables you to identify the products and services that will create sustained value for customers and sustained competitive advantage for your company. Such understanding, along with knowledge of technology trends, is essential to aligning IT and business strategies to drive growth.

As a healthcare company, we provide services to multiple customers including physicians, hospitals, health plans, employers, insurers and pharmaceutical companies—and of course patients, who are at the center of everything we do. Because we work with all of these constituents, we have a 360-degree view of the healthcare market and its trends. Seventy percent of healthcare decisions involve laboratory test informa-

tion, so laboratories such as Quest Diagnostics are at the center of many healthcare IT initiatives. We spend a lot of time with our business partners and customers understanding their needs and how technology can have the most positive impact.

Creating Value-Added Services

Here are some examples of how we have used our understanding of customer needs and market drivers to deliver value-added IT services:

We recognized that online services could make it easier for patients and physicians to do business with us, and so we identified and developed several new Internet-based services. For instance, thousands of patients visit our patient service centers (PSCs) to have blood drawn for tests. We know that a key factor in creating a positive patient experience is to minimize a patient's wait



* you.

Integration of business and IT isn't something that's "hopefully" accomplished in Q... whenever. As one CEO put it, "It's as important as water is for sea traffic." And since a CIO's panoramic view of the business is unmatched, your role in bridging this great divide is critical. But how do you actually do it? Where do you start?



On the next page, we begin to answer those questions. You'll find insights from a company that has a wealth of business process and IT experience. And there's one person who can bring that depth of knowledge to bear on your business. You. To find out more, go to ibm.com/special/cio

what makes you special?

IBM®

What Does It Mean to Have Market Knowledge?

Understanding how emerging trends affect your business is key to strategic performance **BY REYNOLD LEWKE AND STEVE KELNER**

The C-level competency of market knowledge is about understanding the market context in which a business operates. Competence in market knowledge is usually a requirement of the leadership competencies of strategic orientation, commercial orientation and customer impact.

At basic levels of performance, leaders understand obvious industry trends, the company's products and its customers. Middle-level performers see emerging trends. At high levels, leaders understand relationships among the various elements of the market and see how trends could create new customers, affect dealings with competitors and cause potentially profitable changes.

CEOs are better at tracking competitors and industry trends than are CFOs. Both perform better than CIOs, who are just beginning to know their markets well.

How to Develop Market Knowledge

Developing market knowledge is both easier and harder than behavioral leadership competencies. It is easier in that performing at a basic or middle level simply requires study. To get to the strategic level of performance, however, one also needs insight, which comes from understanding the depth and breadth of the business, its market and the levers by which these may change.

Are You Ready to Exercise Market Knowledge?

Readers wishing to improve their performance in this competency need to examine their organization's readiness, and then assess their own. Some questions to ask include:

Organizational

- ☐ Does the organization have an articulated strategy that it follows?
- ☐ To what extent is the organization market-driven versus technology-driven?
- ☐ Is the business simple, or does it include a wide variety of products, customers and business models? Is the direction of the business coherent?

How Key Execs Rate on Market Knowledge

CEOs are better at tracking competitors and industry trends than are CFOs. Both perform better than CIOs, who are just beginning to know their markets well.



These benchmarks rate executive performance on a scale of 1 to 7. Plotted scores are the average of all scores from the 50th percentile to the 85th percentile range among executives rated. The data derives from more than 25,000 executive assessments conducted by Egon Zehnder International.

Individual

- ☐ Do you understand what drives the business and its market?
- ☐ Do you see your role as formulating direction?
- ☐ Can you see a situation from others' perspectives rather than just your own?
- ☐ Can you identify patterns in people and their behavior as well as in systems or processes?

Based on the answers to these questions, you can decide how to develop your market knowledge and use it to benefit yourself and your company. **CIO**

Reynold Lewke (reynold.lewke@ezi.net) is Egon Zehnder's North American CIO Practice Leader. Steve Kelner (steve.kelner@ezi.net) is Global Knowledge Leader of Egon Zehnder's Talent Management and Management Appraisal Practice Group.



* we see you taking the next steps toward integration.

Translate IT into "business-ese." Before IT and business can converge, IT and business must understand each other. So, rather than using techno-speak, explain in business terms how technology can positively impact the organization and give it a competitive advantage.

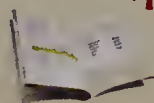
Take down that wall. Decisions on how IT is employed should be made jointly, by both IT and business decision makers. So the walls between those groups must be removed. That way, it's not "we-they." It's "us" using IT to shape and execute the business strategy.

Balance risk and reward. An IT portfolio should balance "run the business" and "grow the business" projects. The "run" projects keep your current business model working efficiently. The "grow" projects, while more complex, help you expand into new markets and product lines.

Gain a brand-new perspective. Your entire IT organization would benefit from working directly with other business units within the organization. Once your staff is acquainted with specific business challenges, they're more likely to know how to use technology to solve them.

Now you're four steps closer to integration. The fifth step? Choosing a partner. And we can help with that, too. If you need someone with extensive integration experience, nobody even comes close to IBM. Our team of over 100,000 delivery specialists has deployed thousands of business and IT projects in multiple industries. And in many countries.

IBM experts use proven business modeling methodologies to help CIOs decide which IT processes drive the most business value, and which give you the best competitive advantage. Our financing options turn up-front costs into affordable payments. And with a range of outsourcing solutions, you can worry less about running the business. So you can focus on growing the business. If your goal is driving growth and creating more collaboration, we have a suggestion. Collaborate with us.



We interviewed 170 CIOs and 765 CEOs. Want to know what most CIOs considered their greatest obstacle? Find out at ibm.com/special/cio

what makes you special?

IBM®



Rest easy.

You just hired an (ISC)²[®] infosecurity pro who can help eliminate system nightmares.

Even the most experienced hiring manager, can't be expected to keep up with the ever-changing demands of information security. Simply put, the fastest way to keep pace with the industry is to count on (ISC)².

(ISC)² does the heavy lifting long before a candidate knocks on your door. Our CISSP[®] or SSCP[®] certification on a resume means a candidate has been reviewed, tested, and qualified. And it doesn't stop there. Our graduates must earn continuing professional education credits (CPEs) or jeopardize their credential.

So keep your eyes open for an (ISC)² candidate and the minute you find one -- sweet dreams.




ISO/IEC 17024

Before your next hiring decision, visit (ISC)² for a complimentary
whitepaper, case study and other valuable hiring resources.

www.isc2.org/hr07

(ISC)²

SECURITY TRANSCENDS TECHNOLOGY[®]




ISO/IEC 17024